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## NEWS IN BRIEF

### Prestel set for Premier

THE Prime Minister has had a Prestel set installed in her political office at 10 Downing Street after seeing the service demonstrated during her visit to Logan last month (CW, June 12).

Declining to name the supplier since the set was chosen at random, a spokesman for the Premier said there was a need to keep up with developments. "It is like buying Who's Who or the Encyclopaedia Britannica; you buy it knowing it is going to be useful without necessarily knowing how much you will use it," he said.

### Director

DEREK ROWE, formerly managing director of Abacus Computers, is to be technical director of Abacus Data-Type, the firm formed from Abacus Computers following its acquisition by the Data-Type group (CW, July 24).

### Star makes good

MICHELLE PROBERT, edged out of the Olympics 400 metres final by Lynsey MacDonald last Saturday, only managed third place in last year's Computastars final. This year's final will be at Alexander Stadium, Birmingham, on September 13. Tickets from Gordon Cairns, 1170 High Street, Croydon CRO1 1QG.

### Third takeover

GEEST Computer Services has taken over Ipswich Computer Services from the Jackson Group. It employs 60 staff, has a turnover of £2m and is the third bureau to be acquired by Geest during the past 12 months.

## Data 100 involved in \$95m write-off

DATA 100 and Sycor, the two terminal systems manufacturers taken over in 1978 by Northern Telecom of Canada, have failed so badly to live up to the expectations of their Canadian owner in terms of growth that the telecommunications manufacturer is likely to write off an estimated \$95 million, worth of goodwill carried on its balance sheet since the two acquisitions were made.

The goodwill is the difference between the actual amount paid for the two terminal manufacturers and their combined book values and it probably would have been written off over a very long period if Data 100 and Sycor, now run by Minneapolis-

based Northern Telecom Systems Corp. were expanding rapidly.

But a NTSC spokesman in Minneapolis accepted reports by industry analysts in the US that his firm was effectively living off the existing base of Data 100 and Sycor customers and commented that this state of affairs was "not a bad thing inherently".

The spokesman also admitted that Data 100 and Sycor had been hit by a "mass exodus" of 17 executives after the takeover.

Barry Eames, managing director of NTSC's UK operation which is still called Data 100, admitted that the markets for Data

100's key-to-disc systems and remote batch terminals were "flat". He also pointed out that NTSC would be introducing a family of new general purpose DP and office systems.

Last year Eames outlined Northern Telecom's "intelligent universe" concept that marries its data communications expertise with other information technologies.

On the question of Northern Telecom's continued support for NTSC the president and chief executive officer of Northern Telecom, Walter Light, said: "Northern Telecom will continue to work hard at establishing NTSC as an aggressive competitor in the office systems market."

## Red light for traffic forecasting project

A COMPUTER-based nationwide traffic forecasting project on which the Department of Transport has spent nearly £7 million over the last five years has failed in its aim of producing accurate figures for trunk road planning.

Called the Regional Highway Traffic Model, RHTM, project, it used modelling software developed and run by the SIA bureau. The project and its shortcomings are described in detail in a report just published by the Standing Advisory Committee on Trunk Road Assessment which concludes, "We do not think that the problems encountered in the RHTM project are likely to be easily solved in the near future."

SIA has carried out traffic modelling work for more than ten years, but an SIA spokesman said that the RHTM project was far more complex than anything previously tackled. The software had to process matrices based on 3,800 zones covering the whole of the country so that the total number of possible zone to zone journeys was about 12 million.

Data for calculating the number of daily journeys made by motorists was collected from two independent sources — cascade interviews and talking to people at home — and the model generated widely different results from the two types of data. Differences of 30% were not uncommon and in one case the difference was 100%.

The Department of Transport pointed out that the RHTM project had been initiated by the previous Labour government because the national road programme was much bigger in the mid-1970s than now.

The present Transport Minister, Norman Fowler, said that he accepted the conclusions of the report on RHTM, adding that forecasts would now be carried out on a local and regional basis.

The intention is to make as much use as possible of the RHTM data which cost nearly £2 million to collect. Processing of the data by SIA cost another £650,000. Expenditure on the services of consultants came to £2.4 million.

### If you want CIS Cobol...

If you want to use CIS-Cobol on a Texas Instruments 990 computer system, there's only one place to get it. OEM distributor Cinsal Computer Systems based in Aylesbury, Bedfordshire, is the first stage of an agreement with Micro Focus to become the sole UK distributor for TI CIS-Cobol.

Texas Instruments has its own Cobol and originally brought CIS-Cobol from Micro Focus for internal use (CW, March 20). It was chosen because it was the only one to fit the complete range of 990 systems from Model 1 to Model 5.

Nick Ashton, sales director of Cinsal has realised the potential of this for TI users in the UK, and he will be using the UCSD Pascal operating system with it. Cinsal hopes to supply CIS-Cobol to users and to other TI OEMs by September for £425. The Forms 2 screen handling device will cost £100.

## Freedom of Information law by December

CANADA looks set to have Freedom of Information law by December, following several false starts brought about by recent rapid changes of government. Pierre Trudeau's Liberal administration has introduced a Bill that is far more revolutionary than previous ones (CW, November 8 1979) providing for judicial review of all withholding of government documents with no exceptions for such areas as defence and national security.

An attempt is to be made to avoid conflict between the Freedom of Information provisions and those already existing in privacy by removing the Bill from the Human Rights Act and incorporating them in the new Act.

A register of government will have to be published and updated twice yearly. From this citizens will be able to check what files they want to see and demand them. To prevent disclosure a minister will have to convince a court that it would not be in the public interest. Exceptions specified in the Bill cover police intelligence, information on individuals, and trade secrets.

By placing the ultimate decision on disclosure in the hands of the courts the aim is to make this decision completely non-political.

### Stake in Ontel

FOLLOWING the 25% stake it took in Modcomp last year, flourishing West German electricals giant AEG-Telefunken has paid \$3.5 million for 10% of Woodbury, New York program-mable display manufacturer, Ontel Corp. Ontel expects turnover of \$30 million this year, up from \$23 million last year.

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## COMPUTERVIEW

SIGHS of relief were audible over Putney last Friday when news came through from the Commons that there was to be a rethink of the whole basis of the proposed Inland Revenue PAYE computer system. The feeling was akin to getting keyed up to give the speech for the first time at the annual ball, only to hear that it was now to be a barbecue and no speech would be necessary after all.

As the plan stood, ICL was set up to come out the loser either way. If the contract went to a US company, ICL's standing in its foreign markets would take a serious knock, while if it won the contract, it was likely to turn out to be a poisoned chalice: a project of that scale, and one so exposed to the spotlight of parliamentary and public scrutiny, was bound to run into problems at some stage.

ICL's image has been dented by the Swansea Drivers and Vehicles Licensing Centre fiasco, even though the company did nothing apart from supply the hardware. Perhaps the strangest aspect of the case is the widely repeated statement that had the contract been given to IBM, everything in the garden would have been lovely, the system would have come in on time and worked perfectly. Has nobody in the Inland Revenue Department, the Treasury or the Department of Industry spoken to the Italians?

In Italy, the Finance Ministry began implementation of a nationwide computer system in 1971. This was to allocate a code to every taxpayer, so that it could be

## Taxing time for ICL

applied to his tax return when it was entered via a terminal. It was also to handle individuals' liability to value added tax.

The system was based on Olivetti terminals and IBM 370/188 mainframes. Four years later, the project collapsed.

IBM's contract was terminated, Italsiel, Italy's largest software and systems house was called in, and the system was completely redesigned and the IBM hardware was replaced with machines from Amdahl.

It is likely that more blame has been attached to IBM for the failure of the project than the company deserves; more relevant is that it underlines the fact that ambitious computer projects of this kind have a habit of going wrong — and if IBM had been given the Inland Revenue that would hardly constitute a guarantee of success.

The decision to send the designers back to the drawing board has been seen as one favouring ICL; the government is saying that it wants as high a UK content

In the system as possible, with the maximum local involvement of UK companies.

Certainly terminals manufactured in Greenock, Croydon will have a high UK content, and IBM's roughs et al will claim to be UK companies of standing.

It is intended that the new studies be completed by the end of the year, when the government's single tender procurement rules favouring ICL are due to run out. Particularly ironic is the fact that the new studies likely to produce a much more decentralised system with a computer in each tax office; it is unlikely that a single tender rules come into effect only to be replaced by a machine of one Amdahl power above, they will not apply. A government decision to give a large part of the contract to ICL will be seen as a simple following of rules laid down by the Labour government in 1988 and consistently adhered to by governments thereafter, but an overtly political act.

There is a neat way round the political problem. The computer system is sought in part to ease the difficulty of applying unexpected changes in the system to a given mass of data quickly. It seems that a significant and useful role could be played by a system by CAFS, the ICL content addressable memory. Since no other company has such a product, the government would be in a position to give the contract to ICL without fear or favour.

## LETTERS to the EDITOR

### Computers can be creative

EITHER I do not understand Donald Michie's use of the terms "knowledge" and "information", or he is wrong, or both. (Privateview, CW July 24, 1980).

In 1987 I wrote a program that composed music which won a prize at the IFIP Congress the following year in Edinburgh.

The program centred on a routine to generate pseudo-random patterns, which was used in a recursive kind of way to set parameters to drive the routine to generate values to set parameters to drive the routine to generate values, and so on.

The last round of values were passed via paper tape to computer controlled electronic

musical equipment and determined the pitch, loudness, timing and tone colour of notes. I devised this mechanism, but its results were entirely surprising to me. I do not see that the information which the tunes and structures of the piece made manifest was the same information that I put into the program. Nor was it knowledge — that is what I gained from listening to the results: knowledge about the procedure. The program generated original information.

Computers can be creative.  
ALAN SUTCLIFFE  
Wokingham,  
Berkshire RG11 1SL

### Ideas are old hat

THE letter from Kirk Gee (CW, July 24) introduces an apparently new piece of jargon "Open Systems Interconnection".

The jargon may be new, but the ideas, as usual, are old hat. IBM was there, over 10 years ago, with the first concepts of SNA (Systems Network Architecture). Despite criticism over the years, it appears that SNA already more than satisfies all the standards suggested in Gee's letter.

Although I would always support movements for standardisation, surely it is a little late to attempt to duplicate research that has been exhaustively performed by others.

S. J. CURTIS  
Eastleigh,  
Hants

### Simple approach

YOUR correspondent Robert Worden (Letters, June 24) complains that your previous headline "Relational Databases Just Around the Corner" is misleading because it overlooks the launch eight months ago of Logica's Rapport DBMS.

From information available, Rapport seems a simple and economical approach to DBMS which is also very portable. But it cannot claim to be in the van of relational DBMS. If the headline is misleading, it should be the authors of, for example, Honeywell's Multics relational DBMS who should complain. And there are other systems

which have as many related features, eg Inquire, which perhaps more wisely made its claims.

If those users who would like to have a relational data facility in their query language in "purists" who "will have waited a few years for the space of their dreams", then they will be looking for a different DBMS from Rapport.

Or maybe the John factor. Rapport is "just around the corner".

ROGER M. TAYLOR  
Little Chalfont,  
Bucks

## DHSS approach to the problems of file security

I HAVE followed with interest Owen Hanson and Norman Revell's informative series on Advanced File Design in Computer Weekly. In particular Part 14 dealing with the problems of file security. In this they describe "online input fast batch update" as a method that combines the security and performance benefits of batch processing with the facility of holding relatively up-to-date information on file. This is, in fact, the general approach adopted within the Department of Health and Social Security/Department of Employment "Nubs" computer system which provides an online service to some 600 unemployed benefit claimants throughout England, Scotland and Wales, and currently handles claims to benefit from approximately 1.5 million unemployed.

In that system, however, the basic approach has been developed and extended to overcome the problems identified and the "two-bucket" arrangement replaced by a single serial file acting as an input "well". The file is controlled by input/output pointers maintained by

the programs accessing it. In this way, the online process may independently service the network and write incoming data to backing store, updating the input pointer. "A" each time a complete block/bucket is transferred and is thus available to the batch update run. The latter similarly maintains an output pointer "B" indicating its progress through the file, and by comparison with the input pointer, can establish when it has effectively "caught up".

I accept that both the basic method and the variation we have implemented suffer the disadvantage that with system responses to terminals being generated at two levels, a short time may elapse before those from the batch update program are transmitted. The balancing advantage we would claim for this approach is the context of the National Unemployment Benefit Scheme in that while

sufficient processing power is normally available to enable the online and batch update elements of the system to remain in step, the file provides a flexible link between these processes and confers the ability to cope with unexpected peaks in daily workloads, without affecting input from terminals.

In the event of failure in the batch update program or files, the online data collection service may be maintained.

V. C. SEENEY  
Senior Systems Analyst  
Department of Health and Social Security,  
Reading, Berks.

THE EDITOR has been asked to commission an article on the subject of "Relational Databases Just Around the Corner". All letters must be accompanied by the writer's name and address, not necessarily for publication.

### 1984 and all that

THIS year's example of the strange things people say in the media about computers was written by P. W. Hart of Orington, who wrote:

These computers that are supposed to be at the heart of the future... they are just a bunch of old-fashioned machines... they are just a bunch of old-fashioned machines... they are just a bunch of old-fashioned machines...

## Two Pi quits race, leaving a clear field for Elbit

TWO PI has finally acknowledged that it is out of the race to provide the basis of Nixdorf's entry into the medium-scale IBM-compatible systems market, leaving the field clear for Elbit with its Anet machine.

It appears that one sticking point in the Nixdorf-Two Pi talks was that Nixdorf wanted to build some of the systems in West Germany — something Elbit had already conceded in principle, provided the terms were right (CW, July 3).

Two Pi is reported to have shipped over 100 of its AM2 2801 based V32 processors, the majority to National CSS which sells them on as the NCSS 3200 with proprietary operating

software. Two Pi is still looking for a single vendor for its systems throughout Europe.

Meanwhile in the UK, Elbit has launched a new version of its DS 2000 VDU, which features the full extended APL character set as a switchable option.

The APL version of the VDU was developed by an Elbit engineer in Haifa, and pressure from the UK managing director and sales manager when they happened to spot it on a visit to Israel persuaded the parent to assign high priority to the project.

Showing that response times can be commendably short at Elbit, the display is on the UK market only two months later.



The new DS 2000 APL terminal from Elbit. The DS 2000 VDU will also form the basis of an Elbit microcomputer, due for launch shortly.

## BASF competes Hitachi deal—St Gobain, Olivetti to join forces?

AFTER clinching a deal to sell the Hitachi M-170 processor in Europe (CW, July 3), BASF has now signed an agreement covering the biggest IBM compatible Hitachi machines, the M-180 and M-200H, the latter with a rating of about eight million instructions per second in its single processor form.

Meanwhile Olivetti has denied reports that it may be killing Olivetti Computers, the division that sells the big Hitachi machines in competition with BASF as well as with IBM itself.

### Unchanged

Olivetti in the UK said that there was "no foundation" to the reports, while an Olivetti spokeswoman at Ivrea in Italy said that the story in the Italian newspaper from which the reports originated was "typical

of Italian journalists". She added that the plan for an Olivetti Computers office in the UK by the end of the year was unchanged.

St Gobain Pont-a-Mousson, the huge French industrial conglomerate that took a 20% share of Olivetti earlier this year, has its own plans to sell Hitachi machines in Europe (CW, August 7) and a merger of its own planned Hitachi marketing operation and Olivetti Computers could be on the cards. St Gobain has a lot more money to put into new ventures than Olivetti.

Olivetti's reluctance to say when Olivetti Computers will open offices in France is a possible indication of behind-the-scenes negotiations with St Gobain. There has also been no definite promise of any office in West Germany although this may be the result of the deal between Hitachi and BASF.

As expected, BASF will sell the Hitachi M-180 and M-200H as the 7/70 and 7/80. The M-180 will be offered by BASF as three upgradeable models, the 7/70N, 7/70 and 7/70AP. The same machine is sold by National Advanced Systems as the AS/

7000N, the AS/7900 and the AS/7000DPC and by Olivetti as the OH5520, 5530 and 5545.

Olivetti Computers sells the M-200H as the 5560 while National has no agreement yet with Hitachi on the 8 mips machine.

## £30,000 grant to aid computer teaching

AN information service for schools to help in their teaching about computers is to be set up by the Ministry of Education in Secondary Education with a grant of about £30,000 from the Department of Education's micro education fund.

A teacher is to be appointed full-time to man the service, and research assistants' posts are also to be set up to extend MUSE's software library and promote software transfer between machines.

This is the second injection of money in the DES £9 million programme, the first being a teacher training project in the West Midlands (CW, July 3). Owing to the Department's budgeting schedules, some of the money has had to be spent in advance of the appointment of the programme director, which is expected in the autumn.

### Attacked

The information service will probably be based at a school in Birmingham and will be run by one seconded teacher and a

secretary. Inquiries from schools on such matters as how to start up computer courses will be dealt with, and fact and information sheets will be compiled.

The DES' choice of members for the national programme advisory committee (CW, July 31) has been attacked by the National Union of Teachers as "unrepresentative". The union has complained to Education Secretary Mark Carisle that while there are two teachers from independent schools on the committee, there is no state school teacher. Thus there will be no understanding of the problems faced by state schools, particularly those that are less academically oriented, a spokesman said.

There is an officer from the Inner London Education Authority on the committee, Derek Esterson, but he is not a practising teacher, the union points out.

The DES has replied that the committee was never intended to be representative, and needed to be kept small.

## Now there's a better VDU for Honeywell systems

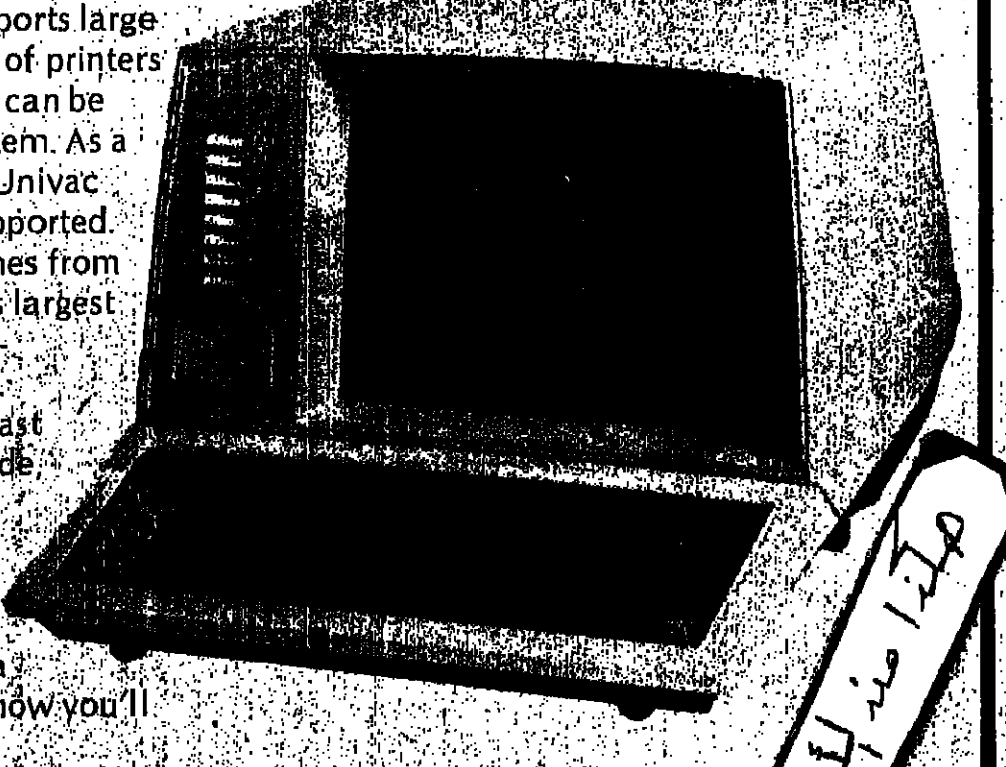
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It's Data Logic's PTS 100 and it's available on three months delivery. Your operators will prefer its 15" green phosphor display. And they'll be more effective, thanks to the better layout of our keyboard and the user-programmable function keys.

The PTS 100 supports large clusters and a variety of printers up to 600 lpm, which can be mixed on a single system. As a bonus, ICL, IBM and Univac protocols are also supported.

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## TOPS scheme to convert operators into programmers

A COURSE under the Manpower Services Commission's TOPS scheme to convert computer operators into programmers is to start for the first time in October, run by Allan Morris and Associates in Harlow.

The students' previous computer experience will enable the course to last eight weeks in

stead of 18 as with the current TOPS programming course, and there will be no period of working on a computer site.

Cobol and Basic are the languages to be taught. D'Morris is appointing a full-time placement officer, and in the view of Ron Humphill of the company, graduates of this course should have good job prospects through the combination of their training and their experience.

### Czechos to get first ICL 2950 in East

THE first ICL 2950 in Eastern Europe is going to the Institute of Physical Metallurgy in Brno, Czechoslovakia. Worth £1 million, the system will be used for research applications and other administrative applications. The system will run under the emerging VME/K operating system.



## Downtime

by Chad

### Those tongue twisting acronyms

ACRONYMS abound in the world of computers and many of them roll off the tongue with the greatest of ease. But not all. Members of the Hewlett-Packard General Systems Users' Group, for example, are

#### Plaint song

PROSPECTIVE users of VME/K on the ICL 2900 series have done an awful lot of waiting around for the product to be ready. The breathless anticipation about what each successive version will reveal has prompted Ted Abram of Vetric to devise a motto for the VME/K users' group: "K Sera Sera."

"This prompts me to ask whether the motto of the VME/K users' group is 'What ever will B will B'."

I HEAR from CII Honeywell-Bull in France that one of the activities they are involved in is "conception assistée par ordinateur". Personally I prefer the traditional means of conception. Still, it gives a whole new meaning to the initials AI, doesn't it?

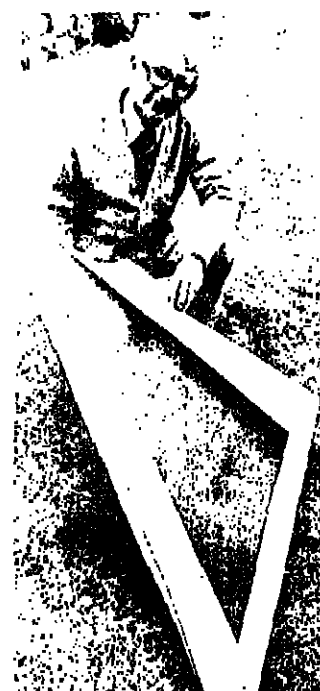
lumbered with the strangulating HPGSUG, which one assumes is pronounced "Hupagus" or something like that.

Members of HPGSUG from all over the world will be getting together in Montreux, Switzerland, from September 16-19 for their annual meeting and according to advance information put out about the shindig it is being organised in co-operation with Nestlé Products Technical Assistance Co Ltd which, thankfully, is abbreviated not to the tonsil twisting NPTACL, but to NESTEC.

### Troubled Times

THE TIMES is advertising for an "Industrial relations executive" to handle the union negotiations for the introduction of computerised systems at Gray's Inn Road. And the best of British luck to him, I say!

Apparently it didn't occur to Times management to have



JENKINS with his model which he claims disproves the Theory of Evolution. The right triangles in the model represent the six days of creation and the seventh day of rest.

## So the Rock of Ages triumphs over the age of rocks

USUALLY scientific developments are taken as disproving received ideas of religion. So it is interesting to see a lecturer in computer science using his college's DEC 20 to produce an analysis of the Bible that indicates it was written by God and that the Theory of Evolution is invalid.

That is just what Vernon Jenkins, of the Polytechnic of Wales, Pontypridd, claims to have done and he has constructed the model that I show in my picture to demonstrate his theory.

A scheme was devised around 200BC, long after the Bible was written, to represent numbers by the letters of the Hebrew alphabet. Jenkins has taken the Hebrew text of the first chapter of Genesis, converted the characters into their corresponding numbers, and come up with all sorts of interesting patterns. According to Jenkins the numbers 37 and 73 (both prime) keep cropping up all over the place, far more often than probability theory allows.

There is also a whole pattern of sevens in the first verse of Genesis, interestingly enough, since the seven-day bit is the whole basis of the story. The whole thing is tied together by the number of 142,857, known from antiquity, says Jenkins.

as "the sacred number." Since the use of letters as numbers had not been invented when the Bible was written, Jenkins claims that God must have anticipated it and used it as a "divine watermark" as proof of authorship.

The right triangles in Jenkins' model have sides representing the six days of creation and the one day God rested, and Pythagoras comes up with 37 and 73 for the hypotenuses. The same numbers also crop up in the New Testament, specifically in John 1.

Quite apart from whether one believes in God, one does not have to believe in probability theory. The pronouncements of mathematicians often seem to me as impenetrable as those of theologians.

Still, it is the Theory of Evolution that is Jenkins' prime target, and he points to gaps in the fossil record to support his case.

I find it disgusting to see one branch of science used to knock down another. I prefer the approach that the American populist politician William Jennings Bryan is supposed to have taken at the famous Scopes "Monkey" Trial.

A Kentucky teacher was being prosecuted for teaching Evolution, and defending counsel Clarence Darrow was trying to demolish Bryan's views with geological evidence of the dating of rocks. Thunders Bryan, "I'm not interested in the age of rocks, I'm interested in the Rock of Ages!"

Leslie Chapman, scoundrel of bureaucracies, stayed firmly rooted in the present, but related how he had taken part in a Granada TV programme attacking the Official Secrets Act. (Granada has just lost its case over the British Steel "mole"). Before the broadcast he was required to sign a document promising under any circumstances to reveal any thing about Granada!

### Best place to end it all

EARL JOSEPH. Sperry Univac's tame futurologist, was talking at the firm's symposium in Nice (see page 11), speculating in a rambling way about, naturally, the future. He cited the case of the German poet who was asked where he would rather live if the world were coming to an end. "Oh, the UK," he replied. Why? "Because they're 100 years behind the times."

Most DPMs, of course, learnt to live with stress the first day they entered putting. Getting a job without experience was ably no easy matter. Continued when, as an employee, he had to contend with tape drives, impossible schedules and fondle his rest room.

To the analyst, produced by the user, in particular, the habit of remembering after the new system which will involve amendments. And grammar, there is stress when you're involved in various applications, personnel long days. It would appear that the computer industry is leader in the stress only ahead of the DPM from his installation weeks to discover what that.

The CPU has been busy by a more powerful, costly range.

The air-conditioning has cracked finally under strain.

The company is quoted a new application implemented in a few days.

Involved

Eliminating the stressful is not easy in the computer industry. All are involved, whether they are the salesmen (who they get that order?) or manufacturers (who the new IBM chess machine ruled?) or the service (with the slow, high speed increase of work).

Involved

Involved

Involved

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Involved

## GILB'S MYTHODOLOGY

HOW advanced are the most advanced software engineering practitioners in the world today? A survey\* was taken of 80 projects in 47 major US aerospace companies during 1977-78 with 225 questions.

The survey data has been made publicly available, even in machine readable form for researchers who wish to draw their own conclusions about the results of technological and organisational ideas on software projects and papers are forthcoming based on this data.

I have sampled the report in areas that interest me and hope that it will give you a better picture of the kind of detail found. Where possible, I will look at issues which I have handled in this column.

### NO STANDARDS

Maintainability? Seventeen participants said that the software met the maintainability standards originally specified. Forty-two participants had specified no standards for maintainability. No wonder we have problems. Only one customer himself specified a maintainability goal.

Reliability? Thirty-five projects had no method of measuring or reporting reliability. Six projects used artificial error seeding ("bugging") as a tool to estimate remaining bugs. Fifteen other projects related various errors found to time spent on debugging. Two projects used a model for predicting software reliability error. Six projects were satisfied when a project's mean time between failures of software was reached.

### MASTER'S DEGREE

Reviews? Most projects held many types of design reviews, which seemed to be a military requirement. Many questions relate to how the reviews were practised.

Unfortunately IBM/Pagan type inspections were not included here and at that time probably few were aware of the

## Advances in software engineering practice

power of formal inspections modelled on traditional technology for quality assurance.

Time estimates? Seventeen projects gave the tasks and the deadlines or time. Twenty-four projects allowed for verification or modification of such task-timing estimates. Fourteen projects allowed individual members to estimate time for each task assigned.

Teams? In only one project were tasks assigned to the team as a unit, not to an individual. Twenty-five projects used a support librarian function, while twenty-seven did not. Three of the librarians were at the senior programmer level. Twenty of the 80 projects reported did not have chief programmers.

In only seven cases was the project manager ever a chief programmer. As reported by Baker in 1972, in four cases the project manager had a PhD and in 29 cases had a Master's degree or was slightly more educated.

Most project managers could program in some language. 43 of them in Fortran and 9 in Cobol. Another 43 reported as specified by 18 of the 80 projects.

Customers and maintainability was specified by eight customers, which is not surprising when another response shows that 25 projects were working with special purpose hardware, and 14 projects had a special purpose operating system.

Twenty-four projects reported that they produced a program maintenance manual containing general and specific information for programmers responsible for maintenance. Forty-four projects reported

delivering a test and implementation plan, although I wonder how many of these plans either tried or achieved complete testing in any sense of the word.

Leon Stuckis' work at McDonnell Douglas showed that about half of all instructions were not tested by any test case, and Larson's work at IBM Kingston showed that formal inspections of the test plans uncovered 30% additional test cases which were needed.

### MOUNTAIN OF DATA

These are personally selected samples of the mountain of data available from this survey. It will be exciting to see what conclusions can be drawn by correlating these with results from other surveys about the

most successful approaches to software engineering and software project management.

There is at least one other such database of similar data at IBM Federal Systems Division, as reported by Felix and Weston in IBM SJ 1/77.

We are beginning to get data which will move us away from mythologies and allow us to make decisions about technology and organisation of technology based on reasonable probabilities that the cause will give the desired effects, without danger of large unexpected side-effects.

Results of a survey on management techniques and procedures used in software development projects by the US aerospace industry, Volume II, by Richard Thayer and James H. Thompson, IBM Research Division, Yorktown Heights, NY, USA, 1944.

Wine and dine

Stress item One is probably the senior company management team, which appears to believe that the DPM's life is spent being wine and dine and bribed by sundry mainframe manufacturers, peripheral suppliers and plug-compatible equipment merchants. In between times, the DPM has to audition yet more data input girls compose adverts for highly expensive programmers, book costly courses for the analysts, attend conferences in exotic lands and escalate all budgetary plans.

Persuading the management team otherwise is stressful, especially as all too often the DPM does not have adequate time to present fully documented and structured reports. Any more time spent on the compilation would delay even more the proposed upgrade or increased number of data input terminals.

Involved

Involved

Involved

Involved

## FOCUS

### Leader in the stress stakes.....

PEAK-HOUR travelling conditions are a well-known cause of office stress and strain. Hardly surprisingly, a survey conducted by the Institute of Administrative Management suggests that adopting flexible hours helps to eliminate the problems of stressful travelling.

Such recommendations are not of much help to the harassed DPM. His working hours are already highly flexible and it is indeed doubtful whether many DPMs encounter rush-hour trains or roads — except when on holiday.

Just about the only factor in the DPM's working life which is not flexible is that of stress. It is a strain finding time to meet every responsibility or requirement of the installation. Probably no other individual is so subject to stress as the DPM.

Wine and dine

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## TEN YEARS AGO

From Computer Weekly of August 13, 1970

A big survey of the computer industry in 1970 was conducted by the London-based Institute of Management Sciences. It was carried out by a team of two UK business consultants and GEC-Bell Telephone Laboratories.

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# NEW 32-BIT ECLIPSE MV/8000. RATHER THAN NAMING NAMES, WE'LL LET YOU MAKE THE COMPARISON.

If you need a fast 32-bit system, the NEW ECLIPSE MV/8000 offers you a 36-4 MB/sec. memory bandwidth. And it features independent processors that drive high-speed busses, and as many as 128 terminals.

Need hot architecture? The MV/8000 gives you one of the industry's most advanced virtual memory management systems plus 4 gigabytes of logical address space, and user programs as large as 512 megabytes.

Your MV/8000 also has unmatched reliability and maintainability. It comes with its own independent microNOVA-based System Control Processor that continuously monitors the system, and identifies hardware faults.

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Don't you think you should make the comparison and choose the winner? The ECLIPSE MV/8000.

32-bit System Check List	Data General ECLIPSE MV/8000
<b>Performance</b>	
- Independent I/O and CPU Busses	<input checked="" type="checkbox"/>
- Communications Front-End Processors	<input checked="" type="checkbox"/>
- System Cache	<input checked="" type="checkbox"/>
- Instruction Cache	<input checked="" type="checkbox"/>
- Address Translation Cache	<input checked="" type="checkbox"/>
<b>Architecture</b>	
- 4 Gigabyte Logical Address Space	<input checked="" type="checkbox"/>
- Virtual Memory Management	<input checked="" type="checkbox"/>
- One-level Page Tables	<input checked="" type="checkbox"/>
<b>Reliability &amp; Maintainability</b>	
- System Control Processor	<input checked="" type="checkbox"/>
- Automatic Error Detection	<input checked="" type="checkbox"/>
- Self-Diagnostic	<input checked="" type="checkbox"/>

Check 1 in 1/70

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PAGE SIX, our weekly spot for programmers and analysts, this week hands over to a guest writer, MICHAEL JAMES, from Stoke-on-

Trent. In an article based on his own experiences as he has tried to find a suitable job in computing, rather than wait for a TOPS course, he takes a

lampooning look at the industry... but says that his style could perhaps owe more to Jonathan Swift than to Lewis Carroll.

## Alistair's Adventures in Computer Land.....

IF Lewis Carroll were alive today, Alice would not be wandering around Wonderland. It would be Alistair's Adventures in Computer Land, for the data system industry has produced more than its fair share of absurdities and paradoxes. Alas, not having the literary talent of Mr Carroll, or rather a minimum of 12 months' successful on-quota experience of novel writing, I can merely outline some of the more ridiculous examples.

So starting at the beginning... In the first series of The Hitch Hiker's Guide to the Galaxy, the astronomers of an alien planet with a lifestyle remarkably similar to that of Earth suddenly discovered that their planet would soon be destroyed. Two huge spacecrafts were thus built, the first to take the planet's service industry personnel such as telephone hygienists, advertising account executives, marketing men etc, while the second would take the academics and workers such as professors, captains of industry and engineers.

The first ship was launched in a blaze of glory on a one-way journey to find a suitable planet which the service personnel would then prepare for the arrival of the second ship... except that the second ship was not launched, there was no planetary destruction and it was just a superb masterstroke by the thinkers and doers to get rid of all their useless parasite professions.

### LIKE A WOLF ON THE FOLD

Others might have their own ratings, but in a hierarchical sequence of usefulness and contribution to society, Alistair would have all computer agency personnel first on board that spaceship, even ahead of estate agents and solicitors — they'd need to be so that they could find the right jobs for the other people!

The teaching profession is very well organised with job vacancies being advertised in certain newspapers and journals. Candidates apply directly and the schools and colleges interview and make their choice. A simple system that works well without any agencies. Alistair has visions of the computer agencies descending like a wolf on the fold and their adverts requiring "minimum two years' experience of Shakespeare or Chaucer under comprehensive operating system".

In Britain, 53% of jobs are filled by direct advertisement, around 25% by direct application and approximately 22% by job agencies. Not so the computing industry, despite the general high level of personnel. Alistair hopes that one day a computer company will develop a system that is intelligent enough to calculate how many people could do the job, and then using the money that is currently squandered on computer agencies...

Of course the big problem for employers is interviewing potential recruits. In computer sales a successful salesman will find himself suddenly promoted to Northern regional sales manager and booked on a management course in three months' time. Indeed it could be a waste of time for Alistair to attend a seminar on job hunting, as these always assume the interviewer knows how to interview. How can the candidates use any interview technique when the manager cannot interview?

Alistair believes that the sales side has an overpreoccupation with "management" and status. Job adverts not only offer Brobdingnagian earnings, but also virtually immediate management prospects. Compare this with the doctors in the Health Service: a house officer either goes into general practice or rises to become a registrar, then a consultant, with a few going into administration. There is nothing magic about management — there is no way that Alistair can rate a regional medical officer of health as being a "better" doctor than one who performs a kidney or heart transplant.

### HULKS AND MUPPETS

Though if the computer industry ran the hospitals, Alistair could imagine a junior house officer successfully removing two appendices and

then being immediately "promoted" into administration... Alistair would go for several interviews with suitable companies in the regulation uniform of loud suit, revolting shirt and nauseous tie that sends children clutching at their mothers' skirts, but meets with the general approval of sales managers. After these interviews, Alistair would find that the commercial mini salesman would fall into two categories, the posers and the Incredible Hulks. The poser company will have city centre prestige offices with the reception area full of gigantic rubber plants and exuberant greenery more in keeping with a Tarzan film set. A super secretary will ask Alistair if he would like a coffee and "how he takes his coffee" because instead of speaking English, everyone speaks in a mid-Atlantic accent using a Muppet-like speechform.

While Alistair drinks his coffee, he can watch the salesmen "hard" at work moving smoothly from one posed position to another — just like the local trendy disco! Naturally, Alistair would have a super interview with the super sales manager and everything would be really tremendous.

Contrast this with the offices of the Incredible Hulks. These will be situated just off the city centre with one smart room for holding customer demonstrations, while the offices are in a semi-qualor to keep down overheads. While a thick skinned tenacity is important, the

essential requirement for success is to conform to the Incredible Hulk stereotype — 1950's unliberated MCP male, on-quota weekly consumption of n pints of bitter, m bottles of whisky and at least three women, plus games of poker for very high stakes. Alistair might lose all of his hard earned commission but at least he'll be one of the boys...

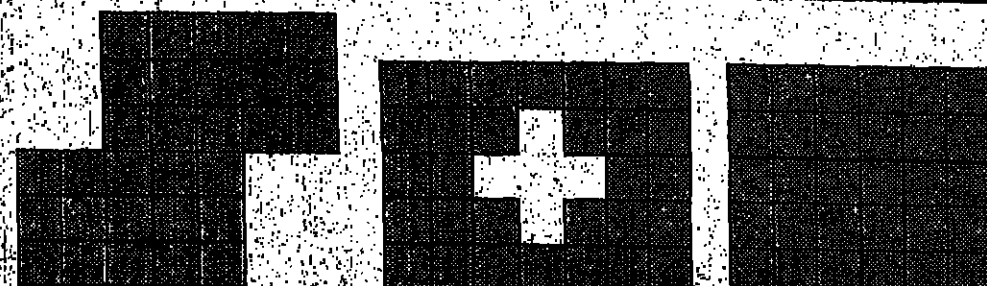
Alistair, though, doesn't really want to be in commercial sales as he likes an intellectual challenge. He'd love the computer time to calculate how long it would take six monkeys to create Hamlet using six typewriters and compare this with the creativity time of six word processor salesmen and their machines. Would the monkeys win?

### ETERNAL DAMNATION

Alistair would also like to go for interviews as a programmer or analyst but doesn't have the necessary one-year experience. Several people have suggested that there are certain numbers that remain constant through time and space, which will provide the answers to the hidden secrets of the universe. Alistair believes that the key number is one, the galaxy being an integer entity that has no room for 0.5 or 0.75. Was he any manager rash enough to employ a person without this one year's experience as this will determine an eternity of damnation hung up in some minor subroutine loop of that great computer in the sky...

Naturally Alistair would like to have a happy ending to the story, with the PER coming to the rescue at the last minute with a TOPS course in systems analysis and everyone living happily ever after. Alas, although Alistair has passed his aptitude test and interview, there is a huge backlog of people waiting to attend. But for you readers who have read this far, do not despair. In his travels across Computer Land, Alistair has found one or two real companies in this unreal land and success, like the computer you needed yesterday, has had its delivery time postponed.

### PUZZLER



THIS little "double-whiff" dissection puzzle is completely separate from the one in the last issue. It is a 3x3 grid puzzle. The top row contains a solid black square, a white square with a black cross, and a solid black square. The middle row contains a solid black square, a white square with a black cross, and a solid black square. The bottom row contains a solid black square, a white square with a black cross, and a solid black square.

## SOFTWARE FILE

### For £100 Zilog MCZ-1 users can use CP/M

FOR about £100, users of Zilog's MCZ-1 microcomputer system can run CP/M, the widely used operating system developed by Digital Research.

The MCZ-1s will need hard-sectored diskettes, which involves a hardware modification but will still allow MCZ-1s to run Zilog's own more powerful Rio operating system.

Although Zilog already has a large resource of commercial systems for the MCZ-1, CP/M's popularity will make accessible to users much applications software which has been developed to run with the operating system.

CP/M's popularity is mostly based on ease of use, and Zilog has adopted it on the basis of "if you can't beat 'em join 'em" rather than because of any deficiency in Rio. For existing systems a retrofit of the hardware adaptation will be available for £50.

### SOFT BITS

#### Printing boost for IGL users

A PRODUCT developed in-house by Safe Computing to improve its own printing capability under ICL's George 2 operating system has been made available to all ICL users.

The product, G-TOM, enables the transfer of print files between 1900, VME and DME environments, allowing archiving on magnetic tape, at a cost of £1,000.

ACCORDING to Fujitsu's internal news service, the Japanese electronics industry is increasingly interested in leasing software products as a way to increase hardware sales. Leasing of software has lagged behind computer leasing which accounts for 30% of all total lease transactions in Japan.

FRENCH software products firm Sigos has released the 61st version of its general accounting package Gael 3 for IBM's 43xx series, having already adapted the programs to VSAM access.

US parent of APL Plus, STSC, formerly Scientific Time Sharing Corp, has announced record turnover and net profit for its fiscal year ending in May 1980, of \$21,101,000, an increase of 27% over 1979's figures.

A 16-BIT microcomputer implementation of business Basic is offered by Sentinel Computers for its range of small business computer systems based on the Intel 8086.

ANAGRAM SYSTEMS of Hove, Sussex has a sales ledger and invoice printing package for Commodore Pet users. The system is mostly written in 6502 machine code and consists of 70 modules which require a 32K Pet, dual drive floppy disc and 80 column printer. It costs £320 plus VAT.

### ADR plans to integrate its products

US software firm ADR has announced an integration of its software products into "functional application areas", so the products such as Librarian and Datedictionary are grouped under Resource Control, and Roscoe and Volle under Office Program Development.

According to ADR's managing director Mick Pollard the idea is to make substantial increases in sales by selling an integrated software system, the advantage to the customer being "a single source for his software solutions".

ADR's products are also sold by CPP in the UK, which also has the range with the UK subsidiary which was fully established this year.

### Digico adopts development tool

DIGICO is to adopt, as standard software produced by a team under the name Universal Program Development and Maintenance Suite which has just had its price cut from £1,250 to £200.

Formerly known as Editor Suite, the set of programs allows users to turn Digico's Basic into a comprehensive development tool.

The suite handles standard functions, replacing many time-consuming procedures with a one-line call. The library has 40 functions which include page numbering as well as more unusual features such as a universal graphics generator, a histogram generator and a cheque generation facility.

The price was reduced to keep it in line with falling hardware costs and to bring the price within the reach of multi-user Co-author Bob Sims says it will be supplied free to hospitals.

### Ansi back blanks

THE Ansi Portrait 2033 has voted to make significant in-Fontainebleau source. The proposal said: "The special character blank is a meaningful statement label and must be separated from other by at least one special character".

## Macro tool could boost productivity

A MACRO based tool that is said to beat similar ICL products by cutting system development and operational costs as well as minimising machine overheads, has been launched by Forward Computing of Birmingham.

Co-developer Melvyn Morris said the tool, called Macro Expansion Language, could be applied to most languages and in ICL's case this was from Cobol to JCL.

"Comparable products such as ICL's DDS and Datakill's SuperCobol, formerly Cobra are competing with one another by covering the same area. Neither is regarded as the facilities we can supply involving a single pre-processor," Morris added.

### Potential

Users of ICL 2903/4, 2900 DME2/3 and ME29 equipment could avoid investing in such extras as George 2, Maximop, and Exec by applying the MEL principle, said Morris, and there was potential for improving performance on existing systems such as Telecomputing's TFS.

On the operations side, MEL is said to reduce George/JCL tasks into one-line commands to run a program, using only the program name, which generate all necessary JCL code. In online JCL development MEL can increase the levels of macro nesting allowed under George 2 from one to 64 and, in job submission, the parameters of a job can automatically be checked before execution.

### Reduction

Applied in Cobol program development, the use of the macro principle can mean a vast reduction in time spent coding the Data Division, and free the

programmer from routine tasks such as checking the condition of a file in the Procedure Division. The Identification Division can also be generated as far as "Special Names" by one statement of the program name.

The MEL application is also said to allow analysts to design files via a VDU. Hard copy documentation is then automatically produced, "fleshing out" the design.

All the commands concerning files — Select/Assign, I/O control, FD file descriptions — can then be bypassed by the programmer using a single line declaring the file name.

In-house standards such as a unique file prefix to each variable name can be taken care of in the generated code.

Other programming shortcuts provided by MEL techniques include generators for tests usually done on 88 Level switches, allowing one-line tests such as "IF FILE FULL", case PERFORMS and GOTOs, and the facility to insert generated code into a program by means of an in-line DO instruction.

Morris developed the Macro Expansion Language with Dermot O'Laughlin, having decided after eight years of programming that certain repetitive Cobol tasks were "a pain" and deserved elimination.

### Removing

"All the restrictions we're removing are the parts of Cobol which actually obstruct the programmer in his real task of problem solving."

When asked about the use of Copybooks for such macro tasks, Morris explained that MEL had a "measure of intelligence", not the heuristic kind, by which macros could com-

municate and follow judgment paths. Also code could appear where it is most relevant, for instance the Working Storage section which relates to a procedure module can appear above the module on a listing.

### Future plans

Forward Computing's Birmingham bureau has been running MEL facilities for six months, and is now offering them at prices varying from £5,000 to £15,000. ICL users already interested include the Severn Trent Water Authority and Lever Bros of Nigeria.

Forward Computing's new products division, a Richard Costain subsidiary, is planning further products based on MEL in the future.

### Low cost way to select applications

USERS of IBM 3270 terminals are being offered a software package by Memorex which will enable them to select applications in any CPU without involving further hardware and software from IBM.

The Terminal Initiated Application Switching package, TIAS II, is designed for the Memorex 1380 intelligent front end communications system and supports a range of multi-point 3270 systems.

It enables the terminal user to select or switch between applications such as TSO, IMS or CMS without operator intervention on transmission lines.

### APL courses

DUE to demand, APL specialists Cocking and Drury is to run extra courses on APL during the autumn. The fundamentals course costs £850 to £2,300.

## IBM compatible RPG II for micros

AN IBM-compatible microcomputer based compiler for the programming language RPG II, claimed to be the first of its kind, has been launched by Cnmat of Cambridgehire for the Cromemco range of microcomputer systems.

Said to be a full and fast implementation of the language based on the IBM System 3 version, it is designed to run on any Cromemco with a minimum of 64K-bytes of memory. The price of £350 plus VAT includes the CDOS operating system, editors and documentation.

### Concise

RPG II Report Program Generator, is a business oriented language which is said to be concise, easy to learn and highly productive within its sphere of creating and maintaining files as well as reporting on data.

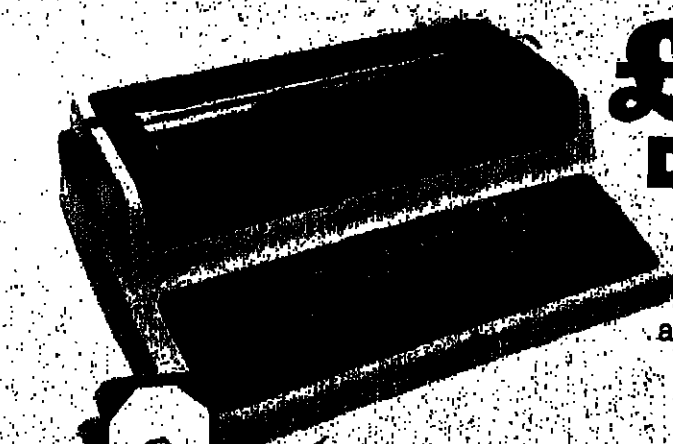
It also has a range of advanced commands for more complex applications and is claimed by partisans to be as powerful and versatile as Cobol, but more manoeuvrable. IBM chose its name, RPG II, as the main language for System 38, now joined by Cobol (Software File, August 7).

## Unix marketed as Xenix

THE time sharing operating system Unix is to be enhanced and marketed under the name Xenix by micro specialists Microsoft, following an agreement with Unix owners Western Electric.

The agreement forms the basis of a bid by Microsoft to establish Xenix as the standard operating system for 16-bit small computers in the 1980s. Charges will be based on volume and number of users per CPU.

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## PEOPLE and EVENTS

## Office Technology recruits from ICL, IBM

OFFICE TECHNOLOGY, the new sister company to Computer Technology, has recruited its senior management team entirely from ICL and IBM.

John Holmes joins as programming manager, having worked for IBM Hursley for 13 years. Engineering manager is Peter Shepherd, whose past experience includes five years at IBM Hursley and four years with the Post Office at Dulis Hill.

Office Technology's manager of product marketing strategy is Bob

Remington, who joins from the US. Remington is a psychologist who formerly worked in the IBM Office Products Division at Lexington.

Managing director of Office Technology, Robert (Spud) Taylor was previously vice-president of ICL American operations, and director of product introduction. He described the recruitment of the management team from IBM and ICL as "unique".

Office Technology expects to announce its initial product, aimed at the word processing market, at the end of 1981.

## Restructuring at Roxburgh

ROXBURGH Electronics has restructured the company organisation. To cope with growth in both component and data recording activity, two separate companies have been formed.

Roxburgh Printers will be headed by director and general manager Michael Davis.

Roxburgh Switches will be headed by Michael Coverdale as general manager. Roxburgh Electronics will remain a holding company with the major shareholding in both new companies.

Bill Ling has been appointed sales and marketing manager for the computer peripherals group, which operates within the Data Recording Products group of 3M. He will continue to work as national sales manager, handling the OEM and instrumentation markets for 3M, in addition to his new duties.

Gary Mason has been promoted within Centronics from special accounts manager for the UK subsidiary to sales manager, new territories. He will be dealing with the Middle East, European Communist Countries and Africa.

Ian Richards, formerly of IBM where he was service planning representative at Hursley, has joined Magnuson as software manager. Terry Rees has become area sales manager with Magnuson; formerly he was business development manager with Univac. Bob Gridley has joined Magnuson as senior engineer, and Roger Blight as sales engineer. Gridley was previously an account engineer with ICL and Blight was also with ICL, working on the Advanced Systems Project. Lorna Robertson comes to Magnuson as personnel administrator.

Sam Smith and Clive Rowe have been promoted at TDS, Smith to sales engineer for the south, and Rowe to sales engineer for graphics products in the Midlands.

Damien Muir has joined CMC as branch manager for the North and East Home Counties. Previously he was a sales manager with Olivetti.

Ken Pearson is Midlands district sales manager of Sweda International. He has been promoted from Midlands sales supervisor.

William Vail has been named as vice-president of finance and administration of Softech in the US. He was previously controller at the Electro-Optics Centre of Honeywell in Lexington, Massachusetts.



New management team for Office Technology are (left to right): Peter Shepherd, engineering manager; John Holmes, programming manager; Robert (Spud) Taylor, managing director; John Bost, product development manager; and Bob Remington, manager of product marketing strategy. The company is based at Winchester.

Berry Roberts is manager, international field marketing operations, of Redifon Computers. Previously he was central accounts regional manager. Dr David Evans has been appointed as a director for Redifon Computers and Redifon CMC Europe BV. Dr Evans is chairman and president of Evans and Sulherland Computer Corp of Salt Lake City, Utah and was previously Pro-

fessor of Computer Science and Electrical Engineering at the University of California, Berkeley.

Walter Brandt is Central European sales manager for American Microsystems, Europe, based in Munich. He was formerly microprocessor and systems sales manager for Germany and Austria with National Semiconductor.

## Leonard van Geest

LEONARD VAN GEEST, director of Geest Computer Services, has died at the age of 66. He formed Geest Industries with his brother John in 1936.

Vic Lane has been appointed computer technical adviser to the Government of the Bahamas, as part of the United Nations development programme. Lane is currently head of the management information centre at North-East London Polytechnic.

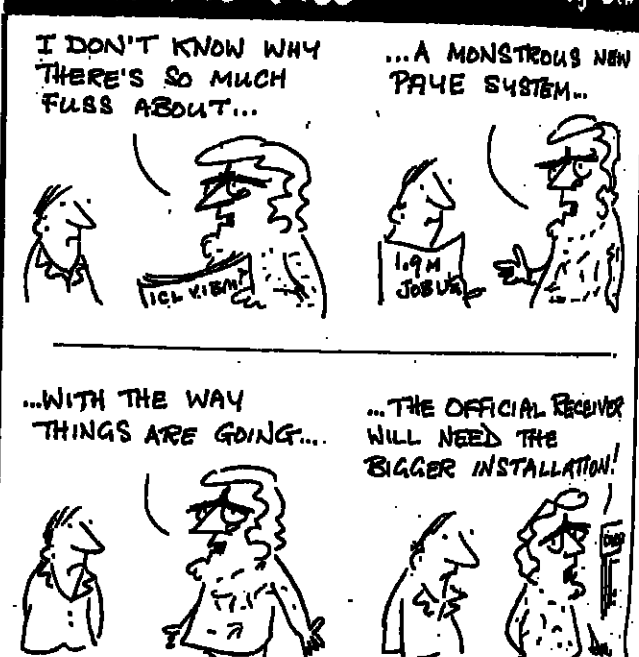
Helmut Kahl has been promoted to marketing director for major accounts and distributors in Europe at Dataproducts International.



Tony Plummer has been appointed consultant relations manager at Honeywell. He joined Honeywell in 1968, after working as branch manager for the customer services division of Sigma (now Xerox) Systems.

Alan Cowan has been appointed manager of PA's Software support unit. He was previously PA's UK personnel manager.

## Liveware File



## DIARY

AUGUST 22 Financial seminar, FINAR financial modelling system. Buzza Data Systems, London EC1. For details tel: (0253) 377477.

AUGUST 29 Seminar FASSET fixed asset recording and accounting system. Buzza Data Systems, London EC1. For details tel: (0253) 377477.

SEPTEMBER 1-2 Microprocessor workshop. Computer Lab, University of Liverpool.

SEPTEMBER 3-5 Logic and microprocessor system design course. Computer Lab, University of Liverpool.

SEPTEMBER 7-12 Introduction to small computer systems in engineering applications, vacation school. Institute of Electrical Engineers, London. Details: IEE, 01-240 1871.

SEPTEMBER 8 Talk on Portability of Fortran 77. Dr John Larmouth: BCS Fortran Group, BSC Headquarters, 13 Mansfield Street, London, W1. 10.30 am.

SEPTEMBER 9-10 CAPP-80, typesetting seminar. Royal Lancaster Hotel, London. Details: CAPP-80 Conference Unit, 01-836 4888.

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WHY DO THOSE IN POWER KEEP MAKING THE WRONG DECISIONS? CAN COMPUTERS HELP THEM MAKE THE RIGHT ONES? OR WOULD MORE TECHNOLOGY SIMPLY MAKE MATTERS WORSE? THESE WERE THE QUESTIONS TACKLED BY A DISTINGUISHED TEAM OF THINKERS AT SPERRY UNIVAC'S SYMPOSIUM IN MIDE. RORY JOHNSTON REPORTS

## Human beings 'nearing the biological limits of their ability to absorb technical change'

THERE is an increasing feeling that the world is running away with itself. Galloping technical change, planning disasters, environmental disasters, frustration with bureaucracy all combine to produce a feeling that the control which human beings have over their collective future is dwindling away. So it makes sense to examine the ways decisions are made in government and business, and to this end Sperry Univac UK gathered a distinguished group of people from government, the universities, and business for a symposium in Mide. Added to the general theme was the general question, "Can Information Technology help?"

There was little disagreement that decision making was in a sorry state at the moment. Charles Read of the Inter-Bank Research Organisation described present-day planners and system designers as "drunks riding bicycles in a thick fog".

Heinz Wolff, a bio-medical engineer with the Medical Research Council, suggested that human beings were beginning to reach the biological limits of their ability to absorb technical change.

Leslie Chapman, a prominent critic of the Civil Service, said that vast sums of public money were being wasted because of officials who are fundamentally opposed to change and blind to problems, elected representatives who are ineffectual, and confusion over responsibility.

Rey Atkinson, himself a senior civil servant in the Department of Industry, admitted that officials had far too little experience of management and of the fields outside government with which they deal.

To the question "Can information technology help?" the general if reluctant answer was "Not really".

Said Atkinson, "I don't think the problems of the Civil Service are going to be solved by information technology," pointing to the view of Ian Lloyd MP that for the technology to work the whole structure of government would have to be changed and its objectives thought out again.

Atkinson added that he had been struck by how little civil

servants had any concept of information as a commodity or vital raw material.

Atkinson also asked whether better information would necessarily lead to better decisions, a point echoed by Heinz Wolff.

But Wolff was basically enthusiastic about technology, suggesting that it could be organised to present information to decision-makers in a much more digestible way than at present. As an example he described his idea of using polar co-ordinates on a screen for displaying variable data, such as a hospital patient's blood pressure, heart rate, and temperature. Any variations would instantly be visible as a change in shape of the figure on the screen. This could be applied to any other sorts of information such as financial data.

Influenced

In considering decisions the symposium inevitably came round to questioning the objectives held by decision makers. Politicians, it was suggested, are concerned with policy and not with management and are too easily influenced by who does best in a debate. Officials, on the other hand, judge their actions by whether the rules have been followed rather than by the bottom line.

Charles Read was insistent



CHAPMAN: Corrupt civil servants would steal less than they waste now.

that it should be possible to have non-quantifiable objectives, pointing to the voluminous EEC regulations on apples that in no way deal with whether the apples taste good. Information technology on the other hand

could not possibly read in to

Contradicting Chapman, the civil servant present claimed that freedom of information in such countries as Sweden was a sham and that the advantages of secrecy was that it allowed a strenuous debate within government before decisions were taken without those involved having to worry that they were giving the Opposition ammunition. It was also remarked how lucky we were in Britain to have a relatively incorrupt Civil Service.

To this Chapman replied, "If



READ: Attacking the false god of efficiency.

leads to over-emphasising the measurable at the expense of the non-measurable.

Martin Shubik of Yale University remarked that the US Defence Department's strategic thinking was based on the hardware that existed rather than the other way round.

Frank Davidson of the Massachusetts Institute of Technology agreed, opining "Invention is now the mother of necessity". He pointed to the claim that PERT techniques, far from saving money on which they were first used, actually added \$1 billion to the cost. Yet the public assumed that PERT was a success and was frantically trying to apply it to lots of other projects.

The answer, Davidson said, "does not lie in methodology."

Too much power

A public survey had been commissioned for the symposium from National Opinion Polls. Two thousand adults had been asked for their views on where power in Britain lies and how life could be improved if the decision-making structure was changed. Trade unions and oil sheiks came at the top of the list of those thought to have too much power, with MIP very low.

Of those asked, 40% thought that life would be made worse if there were more computers in the UK; and 33% thought it would be made better.

Inevitably the issue of open government arose at the symposium, championed by Leslie Chapman, who asserted that it was to a large extent the absence of hard facts and information which enabled officials to make elected representatives ineffectual. At the same time he described how, as a director of London Transport, he was swamped with vast quantities of paper for approval which he could not possibly read in to.

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they were corrupt they would steal much less than they waste now."

Failures in recent decision-making provided plenty of food for thought. Frank Davidson was involved with the North East Corridor Project to build a fast rail system between Washington and Boston. This had been cancelled because it was assumed that new technology would soon supersede the railways, a totally unjustified view as could now be seen.

"Future Shock" has been exaggerated, Davidson said. "In many areas we need more change than we have at present, not less."

Charles Read put a different slant on the proceedings, attacking the "false god of efficiency," and claiming that cost-benefit analyses were "all cost and no benefit." We should automate the Black Economy, he said, and claiming that a solution would be to abolish central files altogether. Instead, every citizen would carry a machine-readable card around bearing all his personal data: bank statement, car tax record, educational qualifications, TV licence payments. This Wolff called "The Labelled Society."

Such a scheme was already in use in Chinese hospitals, Wolff stated, where individuals were responsible for keeping their own medical records. The effect was that there was no way other people could pry into personal data.

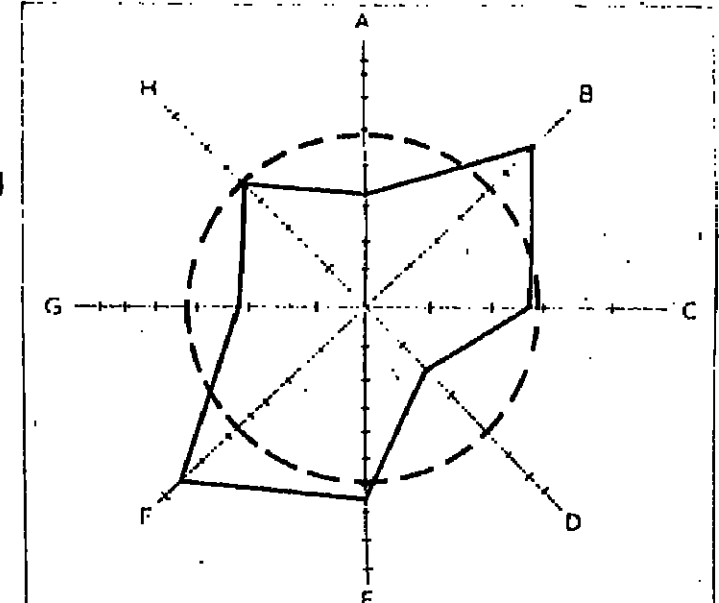
"People would be motivated to have their cards updated as various services would not be obtainable without the card. For instance, the card would be your

car key and the car would not start if the road tax was unpaid.

There would have to be a central repository of duplicate cards to replace those lost. This led others to suggest that Wolff's idea was basically sound, since it would always be possible for unscrupulous people to obtain personal data from this central

bank.

Wolff and Richard Gregory, a physiologist from Bristol University, proposed a novel application for computers in assisting invention. Many developments were held up for years by a "missing link" in technology. For instance, jet engines needed a heat-resistant metal for their turbine blades, and magnetic sound recording needed a medium. A computer databank for problems looking for solutions could be fed with new developments as they came along.



Each of the eight axes of Heinz Wolff's polar display represents a different variable. Normal values produce a circle, and any deviation from the norm produces an instantly recognisable distortion in shape.

## 'Carry all your personal data on a card' idea

PRIVACY as an issue arose several times at the Sperry Univac symposium, prompting Heinz Wolff to suggest that a solution would be to abolish central files altogether. Instead, every citizen would carry a machine-readable card around bearing all his personal data: bank statement, car tax record, educational qualifications, TV licence payments. This Wolff called "The Labelled Society."

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## IBM 'not to proceed with 8100 as it is' prediction

AFTER declining in 1979, sales of the Syta business system by Computer Automation have picked up considerably, mainly due to a boom in export sales.

Syfa is offered primarily to IBM users as a more powerful and flexible alternative to the IBM 8100 distributed processing system and a key feature is full support of the IBM's Systems Network Architecture.

Two big IBM users in the UK that have opted for Syfa in preference to IBM kit are Tesco and Rossmore Macintosh.

George Dashiell, vice-president of the firm's Commercial Systems Division, doubts if the IBM 8100 will ever be installed in large numbers. "I suspect IBM will not proceed with the 8100 as it is," he remarked. "I think it will be superseded by a very small 4300 machine."

He does not see the software compatibility between such a machine and the host IBM mainframes as making Syfa a less attractive alternative.

Dashiell is also unconcerned about IBM making changes to SNA that could render Syfa obsolete. "A change in SNA would harm IBM more than Computer Automation. A radical change to SNA would be devastating for users and IBM would only do it if it were terribly hurt by Syfa. But to IBM Computer Automation is no more than a mosquito bite."

"Computer Automation's biggest challenge in the US has been building a marketing organisation for Syfa. If IBM had had a system like Syfa it would have sold 100,000 units by now. We used to be a centralised project oriented company but we are now setting up district sales offices throughout the US and have completely changed our marketing management."

Despite this decentralisation, it will continue to be interested only in selling Syfa to customers wanting at least five units. The early orders were for considerably more than five.



METHVEN: "I like the OEM business and I don't mind people thinking that it's cruddy and unglamorous. We keep on growing..."

David Methven, president of Computer Automation, founded the company in 1987 after leaving the Southern California firm Decision Control, shortly after it was acquired by Varian Associates and renamed Varian Data Machines.

According to Methven, the Varian takeover put an end to expectations that he and several of his colleagues had of getting shares in Decision Control. So they quit.

Methven is an engineer by profession and at Decision Control was in charge of the development project that produced

the 820i machine that Varian sold for several years. Varian Data Machines was bought by Univac in 1977.

The history of Computer Automation has closely followed the development of the OEM business and the firm is probably best known for its Naked Mini family of low cost OEM machines. But, in the last few years, Computer Automation has also been active in the end user market with its Syfa business system.

Here, KEITH JONES talks to David Methven about Computer Automation's recovery after a bad patch.

## Naked Mini firm is on way up again

LOOKING back on a financially grim 1979 fiscal year, Computer Automation president David Methven listed several causes for the firm's \$4.2 million loss.

According to Methven, it outgrew its existing financial control procedures, there were problems with the control of the firm's Naked Mini manufacturing operation and customer accounting was what Methven described as "inadequate". On

top of all that, it was heavily overstocked.

Methven commented: "Our inventories are still far too big. We have enough for a year when there should be enough for four months. But we are working on getting inventories down."

At the same time Computer Automation's debt is also being reduced at a respectable pace. According to Methven the firm's financial plan called for the debt to be reduced to \$12 million by the end of June and it was already down to \$10 million by the beginning of May. But Computer Automation's interest payments were still running at a painful \$2½ million a year, a situation Methven found "particularly galling."

On the brighter side Methven pointed out that interest rates in the US were now falling and he expressed optimism about Computer Automation's 1980 results.

He was unable to make any firm comment about predictions that the company would achieve net profits of \$4.7 million on a turnover of about \$80 million, although he agreed that the turnover prediction was about correct.

To some extent, Computer Automation has been a classic example of an entrepreneur-run company. But so were Digital Equipment, Data General and Hewlett-Packard and they all succeeded.

The predictions were made by computer industry analyst Faith Griffin of Rothschild, Unterberg, Towbin of New York, who gathers her information from Computer Automation's customers and financial personnel.

While factors like interest rates are largely out of the company's control, measures have quite clearly been taken where possible to improve Computer Automation's performance, including a management shake-up in which a number of heads rolled.

Commenting generally on Computer Automation's performance over the last 10 years, Methven said: "To some extent Computer Automation has been a classic example of an entrepreneur-run company. But so were Digital Equipment, Data General and Hewlett-Packard and they all succeeded."

Methven believed the reason for Computer Automation's last impressive growth over the last decade compared with competitors like Data General was that it did not go public until 1977.

According to Methven, Computer Automation tried to go public in 1970 but was thwarted by a stock market slump at that time. He remarked that the net worth of Computer Automation at that time was only \$500,000 which looked very bad when it was being sold for \$1 million worth of OEM kit.

Methven stressed that the Naked Mini division, Computer Automation's OEM minicomputer operation, was still the basis of his business. It still accounted for about 55% of sales and supplied a 400-strong line up of customers, none of whom provided more than \$4 million worth of business. So the division did not depend on one or two customers for its survival.

He commented: "I like the OEM business and I don't mind people thinking that it's cruddy and unglamorous. We keep on growing despite competition from Digital Equipment or Data General."

Moreover, our Commercial Systems and Industrial Products divisions would not exist without the Naked Mini.

Here he was referring to the operation that builds and sells the Syfa commercial system aimed at end users, particularly IBM users, and to the division that manufactures its automatic test systems which have seen a

increase in sales of about 4% over the last year.

According to Methven, all Computer Automation's exports are eventually to be made at its Elms plant.

"We chose Elms primarily because of the tax benefits rather than its membership of the EEC, which was not critical. We could have gone to Puerto Rico. We employ about 100 people in Ireland at the moment and our plan is to expand the workforce to 500 or 600," he explained.

Computer Automation also has a small factory in Bombay, located in the Santa Cruz Electronic Export Processing Zone, otherwise known as Seepz.

Seepz was set up for firms that export 100% of their products and offers attractions like very favourable factory rents.

But the biggest attraction for firms from the so-called "developed world" must be the cheapness of the labour.

A big thorn in Computer Automation's side at the moment is the investigation by the US Securities and Exchange Commission. Methven put up for sale 18,000 of his own shares in the company during the 1979 fiscal year and the commission is investigating the possibility that he did so knowing that the company was going to make a loss that year.

This is the second investigation of this sort by the commission. The first happened when Computer Automation announced that sales and profits in the 1974/75 year would be below plan not long after Methven had sold some shares. The investigation was ended after Methven was questioned under oath.

"This time Methven is a lot less patient with the commission," said a source. "This investigation is going to be between \$20,000 and \$50,000 a month in legal fees and the case could go on for years."

Returning to a much more positive side of Computer Automation's affairs, Methven predicted that its commercial systems division would have a very good year in 1980. The bulk of the main product, the Syfa business system

## INDIAN SCENE

# Software company set to move into West Europe

COMPUTRONICS, the Indian software and services company which has grown big on the import of Russian computers, is ready to expand its business into Western Europe.

Last August it began assembling Mael 2000 computers from Italy in SEEPZ, the Santa Cruz Electronic Exports Processing Zone in Bombay, and has so far built the first 25 of the 50 contracted.

SEEPZ is a "free trade area" close to Bombay's Santa Cruz airport. Work done there must be 100% for export, and companies setting up there benefit from low rents, fast Customs procedures with inspection being done on-site rather than at the airport or port, and good communications with the rest of the world.

Other companies manufacturing or assembling in SEEPZ include Burroughs and Systime. Burroughs is currently manufacturing a new printer designed in France, for use around the world, and Systime is assembling systems and doing software development in connection with contracts in the Middle East.

### Cunning design

"The Mael systems are being sold in Yugoslavia and the Far East," says Computronics managing director Piyush Singhal. "We have exported systems to the value of five million rupees — £280,000. We take in sub-assemblies and then assemble and test the systems."

The Mael 2000 is called the Ravi 2000 when built by Computronics. It is a desk-top microcomputer with software cunningly designed to get the most out of the Fairchild 8088-bit microprocessor, which cycles at a rather slow two megahertz. It has a full screen, keyboard, two 280K-byte built-in floppy disc drives and is programmed in a micro-assembler. A tape unit and a 120 cps printer are offered as options.

The agreement with Mael represents our first attempt to collaborate with Western European companies. We are writing a building construction software package on behalf of the Mael subsidiary in West Germany; the work will be done in Frankfurt, and we are planning to open a Western European office shortly to seek further contracts of this kind. The office will either be in Frankfurt, to be close to Mael; there, or in Brussels," says Piyush Singhal.

### Replaced

Computronics' main business is — are — operating bureaux in Delhi, Bombay and Allahabad, importing computers



"We have done more than 20 million rupees' worth of software for the Russians and we plan to do another 20 million this year," says Piyush Singhal, managing director of Computronics.

from the Soviet bloc on behalf of other Indian customers, and writing software under contract to the USSR.

The ES-1030 in Bombay has now been replaced with an ES-1033 (CW, July 6, 1978), and Computronics also has an ES-1022 in New Delhi and an ES-1010 at Allahabad in Uttar Pradesh. In addition it runs a second ES-1022 in Bhubai, Madhya Pradesh State, on behalf of Bhubai Steel.

All machines are IBM 360-compatible. The ES-1022 is rated equivalent to a 370/138 by Computronics. However, this may be optimistic as reports from France rate it as about the same as a 370/125. The ES-1010, made in Hungary, is a minicomputer based on the French CII Mitra 15, adapted to retain compatibility with other models in the ES unified range of the Comecon countries.

### Memory

Computronics rates its new ES-1033 at approximately equivalent to an IBM 370/148 (CW, February 28), but others have rated it below a 370/138.

The 1033 at Computronics has 512K-bytes of main memory, and the processor cycles at 300 megahertz. It is backed by six 28-megabyte disc drives from Bulgaria, and six 800 bpi tape drives.

There is also a local VDU controller currently supporting four VDUs and the machine also supports two 900 lpm line printers and two 1,200 cpm card readers.

It is running under release 4.1 of the OS/ES operating system, which is equivalent to release 21.8 of OS/360.

The ES-1033 is a member of the Rjad-2 line, the second generation of the Comecon countries' unified range, and comes with semiconductor memory rather than core. Com-

putronics describes it as a very good, trouble free system.

The company now wants the virtual storage version, called the OS/ES/V5 version of the operating system. This machine would probably go to Delhi, and the 1022 there would probably go to Allahabad. Demonstrating once again the sturdy independence of the Indians, Computronics' own engineers have almost doubled the main memory on the 1022 at Bhubai by using Indian-built add-on memory.

The ES-1033 is used for local time sharing services and batch

business data processing for outside clients, and also for software developments.

"We have done more than 20 million rupees' — about £1,125,000 — worth of software for the Russians, and we plan to do another 20 million rupees' worth this year," says Piyush Singhal. In addition, other users of Soviet computers imported by Computronics, Operations Research Group of Baroda, and the Administrative Staff College of India in Hyderabad, have paid for their computers with software developed under contracts from the Soviet Union.



Indian computer installations are totally unique, and plenty of Shastri, albeit a good looking fellow, bears a more than passing resemblance to that of an IBM 360.

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Most programming will be in ASSEMBLER and you will ideally have experience of working at device level. Awareness of Intel 8085/Zilog Z80/Intersil 6100 or PDP11 will also be useful.

The successful candidates will become involved at product design stage and will have the opportunity to see their ideas through development to large-scale production. Excellent conditions of employment are offered, including relocation assistance, together with good long-term career prospects.

REF: SW3/1408/CW

### PROGRAMMERS TO PROJECT LEADERS . . . .

ON-LINE REAL-TIME DATABASE  
UNIVAC 1100 & IBM370  
DISTRIBUTED MINI's

\* PROGRAMMERS to £7,500

\* ANALYST/PROGRAMMERS to £9,000

\* PROJECT LEADERS to £10,500

\* TIMESHARING SPECIALISTS to £10,500

Based in HAMMERSMITH W6, our client is an international engineering and construction organisation. They make extensive use of large Univac and IBM hardware to develop systems using on-line and database techniques.

Additional Programmers, Analyst/Programmers and Project Leaders are required now at all levels to enhance the development team and to work on a range of major systems.

Timesharing Specialists will provide an internal consultancy service to timesharing users and will design special non-standard systems.

Excellent conditions of employment include: company pension scheme, free life assurance, flextime, paid overtime and interest-free season ticket loan coupled with first-class career opportunities.

REF: SW4/1408/CW

**MYRIAD APPOINTMENTS LIMITED**

30 Fleet Street, London EC4Y 1AA Telephone: 01-353 0981 24 hours

Send to: MYRIAD APPOINTMENTS LIMITED  
30 Fleet Street, London EC4Y 1AA  
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Address \_\_\_\_\_  
Tel Day \_\_\_\_\_  
Evening \_\_\_\_\_

01-491 4706



# TAKE THEIR WORD!! A TESTIMONY TO THE RESPONSE COMPUTER WEEKLY CAN BRING YOU

because you will be hitting more data processing personnel than ever before!

## Computer Professional Recruitment Consultancy

RJP/CK

4th July, 1980

O. Kelly Esq.,  
Computer Weekly,  
Grove House,  
Skerton Road,  
Old Trafford,  
MANCHESTER

Dear Owen,  
I thought you may be interested to know that our advertisement in the Northern Recruitment Feature recently, was extremely successful. We received 25 high quality replies and are still processing these on behalf of our client.  
Thank you for your help which, as usual, was "above and beyond the call of duty".  
Yours sincerely,

Yours sincerely,  
J. J. PEELING  
Managing Director

QUADRANT  
RECRUITMENT  
LIMITED

Specialists in computer staff placement

Ref: LCR/GR/10

4th July 1980

O. Kelly Esq.,  
Computer Weekly,  
Grove House,  
Skerton Road,  
Old Trafford,  
MANCHESTER,  
M16 0LJ

Dear Owen,  
Recently we advertised on behalf of one of our clients in "COMPUTER WEEKLY" Northern Feature on the 14th June. Our clients are specialists in Real-time Industrial Systems and are currently looking for D.P. professionals in this particular field.  
However, the responses from "COMPUTER WEEKLY" was very good indeed and the college was excellent.  
Our clients are delighted and are sure to employ more than a few of the candidates.  
We have always been pleased with the service and response from "COMPUTER WEEKLY" and we recommend this media for employing D.P. professionals in the North.  
Yours sincerely,

Yours sincerely,  
J. J. PEELING  
Managing Director

the newspaper computer people rely on

DATA RESOURCES AGENCY LTD. 80V/24 816 LONDON COPTOWN 1 TOWER HOUSE  
HARRINGATE NORTH YORKSHIRE YO1 1TS TELEPHONE (0423) 35111

Ref: CAS/SLM

18 July 1980

Mr Owen Kelly  
Computer Weekly  
Grove House  
Skerton Road  
Old Trafford  
MANCHESTER  
M16 0LJ

Dear Owen,  
As you know since Data Resources was established all our advertising has been carried by Computer Weekly, and we have always been pleased with the results.  
I am sure you will be interested to know that the advertising we used in the recent Northern Recruitment Feature again followed the pattern and the level and quality of the response was first class.  
I look forward to continuing this very successful relationship with you for some time to come.  
Kind regards  
Yours sincerely

Yours sincerely,  
Cathy Scott  
Senior Consultant

DML COMPUTERS LTD.

DSH/sjv

10th July, 1980.

Owen Kelly, Esq.,  
Computer Weekly,  
Grove House,  
Skerton Road,  
Old Trafford,  
MANCHESTER,  
M16 0LJ

Dear Owen,  
Just a note to say how pleased I am with the response I received to our latest advertisement placed with yourselves.  
At a time when there is not a great deal of movement of computer engineers, your agency has been able to confidently recommend D.M.L. Computers Limited, a very large number of replies from the best companies.  
We used Computer Weekly for this purpose and found that through previous successful adverts for the whole range of D.P. staff, I have always been able to confidently recommend your publication to my clients. Moreover, the volume of response is matched by the high standard of advertisement reproduction and the personal service you have always afforded me.  
When seeking a quality service to clients it is an obvious fact to go with a quality trade publication in our search for computer professionals. As this has been a very long time, I am sure I will be in touch with you again.  
Yours sincerely,  
D.M.L. Computers Ltd.  
D.M.L. Computers Ltd.  
D.M.L. Computers Ltd.

Yours sincerely,  
D.M.L. Computers Ltd.  
D.M.L. Computers Ltd.  
D.M.L. Computers Ltd.

Yours sincerely,  
D.M.L. Computers Ltd.  
D.M.L. Computers Ltd.  
D.M.L. Computers Ltd.

Yours sincerely,  
D.M.L. Computers Ltd.  
D.M.L. Computers Ltd.  
D.M.L. Computers Ltd.

Yours sincerely,  
D.M.L. Computers Ltd.  
D.M.L. Computers Ltd.  
D.M.L. Computers Ltd.

## Senior Sales Engineer CAD/CAM

### c.£9,000

BASE SALARY  
PLUS SUBSTANTIAL GUARANTEE  
PLUS COMMISSION

Location - MIDLANDS

Specialist Computer Recruitment Ltd

London 01-836 0671 3 Mandeville Place, Wigmore Street, London W1M 6LB  
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Brussels 010 322-840 7151/71 Avenue Louise 327, Boite 4, 1050 Bruxelles

We have been retained by a privately owned British Company to recruit a successful Sales Engineer, to market a versatile range of Graphical CAD/CAM products to various sectors of industry.

This position comes as a result of expansion and the launch of an exciting new division, together with a product dedicated to the CAD/CAM market area. Features of the product are proven reliability, flexibility and innovations by way of continuous research and development, guaranteeing a high level of sophistication to the equipment now and in the future.

Ideally, you should be resident in the Midlands, currently selling CAD/CAM systems, and be able to demonstrate the enthusiasm and commitment necessary to achieve the career progression inherent in the small, flexible and dynamic Company environment. Also practical knowledge of engineering and manufacturing techniques, together with an understanding of the marketplace is of paramount importance.

Remuneration is by way of a base salary of c.£9,000 plus a substantial guarantee, resulting in an above average first year earning package. A Company car and full expenses will also be provided.

For an immediate confidential interview, where you will be supplied with full Company information, contact:

CHRIS FRY ON 021-236 3781 (24 hour answering service)  
OR 021-742 1992 (evenings and weekends)

Candidates are invited to submit a curriculum vitae where confidentiality is guaranteed.

## DOS/VS...West London

A major 3031 installation in West London requires a Senior Systems Programmer and an Operations Supervisor to strengthen the existing team. The machine is currently operating under DOS/VS but will be upgrading to DOS/VSE and VM in the near future. Database facilities are provided by DL/I and the teleprocessing system runs under CICS.

Salaries are competitive, conditions of employment are excellent and the benefits package is most attractive.

### Senior Systems Programmer c£10,500

Reporting to the technical support manager, you would be responsible for the evaluation of all software, including operating systems and commercial packages, and for the implementation of new systems software within the installation.

Previous experience must include Assembler, DOS/VS and CICS and some supervisory experience would be an advantage. Full training in new software techniques such as VSE, VM and VOLLIE will be provided.

- 27 Days Holiday
- Flexitime - 35 Hour Week
- Training in DOS/VSE VM
- Excellent Pension Scheme
- Relocation Package
- On-going Technical Training

### Operations Supervisor c£9,000

Responsible to the Operations Manager for the control and co-ordination of the operations, support and job control departments, consisting of approximately 20 staff.

An in depth knowledge of DOS/VS and CICS is required plus previous operations supervisory experience. Training in VSE and VM will be provided as necessary.

This is a key role requiring a high degree of management skills complemented by a strong technical operations background.

Please telephone (24 hour answer service) or write to apply. Quote Ref: CW141-P

CAPP  
ASSOCIATES  
01 666 9593

Computer and Professional Personnel Consultants

AMP House, Dingwall Road, CROYDON CR9 9XA



# contracts set fair..

## LONDON COMMUTING AREA

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Programmers	IBM DOS/VS COBOL DL/1	£320
Programmer	IBM DOS/VS BAL	£320
Programmers	IBM OS CICS/VS BAL	£320
Programmers	BASIC (Minicomputer)	£300

Telephone Richard Morley on:-

(01) 638-0036

DILOG LIMITED Throgmorton House 15 Copthall Avenue London EC2M 5TP

*professionals seeking professionals*

## Data Processing Manager → One career step!

Analyst/Programmer ↑

Croydon

to £10,000

We can only seldom offer an opportunity such as this - in one career step to move from Analyst/Programmer to Data Processing Manager. However this is such a chance - with a manufacturing organisation, in the specialist field of electronic controls.

The experience required includes systems analysis, programming and preferably operations. You will either have a technical background with the ability to accept the responsibility of running your own show, or possibly already be a small installation manager. In the systems area both financial and production systems are to be implemented using the 2903/2904 hardware in an on-line environment. Programming languages used are COBOL, which you should have and FileTab/TABN, experience of which would be an advantage.

The department is small and the D.P.M. will be involved in analysis and programming, in addition to direction and day to day management and operation of the installation. Salary is to £10,000 and other benefits include 23 days holiday (25 days in your 3rd year), a pension and life assurance scheme, and a subsidised canteen. There will be a salary review based upon performance after the first six months with the company, and thereafter salary will be reviewed annually at the 1st January.

**CAPP ASSOCIATES**  
01-686 9693

Please telephone 121 hour answer service for write: Quota Ref. CW144-1

Computer and Professional Personnel Consultants

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**JBA**

## Sales Executive

**London and Home Counties Package c. £20,000 + Car**

A new range of mini computers of exceptional quality and technical advancement is about to be launched throughout the UK by a hand picked team of professionals. As a member of this team you will be responsible for opening, developing and supporting a specific area which you will go on to manage once you have established the product. A considerable amount of experience is expected including a sound commercial systems background with a minimum of 5 years in a mini sales organisation.

A first class opportunity to attain that management goal with a potential market leader.  
Contact: Brian Postles

## Database Consultants

**London & Europe**

**& Neg**

One of the most highly respected consultancy organisations in the UK is recruiting top database people to work on various projects throughout the UK and Europe. A sound technical background is essential with emphasis on the analysis/design aspect. Full data analysis experience with intricate knowledge of large IBM installations, would be a definite advantage.

At top salary levels, appointees will be expected to contribute to the company's growth within a fairly short space of time, so a consultancy background would be favoured. Minimum salary of £11,000 + benefits (enr etc) can be expected for around seven years experience in the d.p. industry.  
Contact: Janet Chilvers

## Project Leader

**Central London**

**£11,000**

This internationally known software house, has an immediate requirement for an experienced person, who has a solid commercial background incorporating all aspects of accounting, design of real-time systems and database. Good knowledge of Honeywell hardware is essential, with experience of at least one other commercial machine. The appointee will be completely responsible for the project, and would be expected to have covered areas such as planning, scheduling, monitoring progress of systems and control of approximately 10 staff.

Excellent opportunities exist within the organisation, which will ensure good prospects and possible travel to Europe if desired.  
Contact: Janet Chilvers

## Technical Product Support - ICL/DEC

**Thames Valley**

**c. £10,000 + benefits**

Our clients are the originators and marketers of a world-renowned range of Database and T.P. software projects. They are currently looking for good all round D.P. technicians to work in their Technical Support Group. Detailed knowledge of ICL and/or DEC software is essential while adaptability and commercial awareness is also required. Some European travel is involved, but without extended overnight stays. These extremely attractive opportunities offer first-class career development in a highly professional and stimulating environment.  
Contact: Margaret Stevens

## Technical Designers

**Middx. and Bedfordshire**

**£8,500 - £11,000**

A small, well established systems house has interesting and challenging opportunities for technically competent individuals. The company has an excellent reputation, of which they are justifiably proud as a consultancy specialising in mini/micro based developments in a number of areas including: Communications, Graphics, Simulation and Process Control. Ideal candidates will be graduates and be well versed in the architecture, capability and use of PDP 11, Data General, NOVA, GEC 4000, INTEL or Z8000 processors. Preferred languages are Assembly, Fortran and Cobol. A superb opportunity to join a 'blue-chip' international company, who can offer variety, quality of experience and tremendous career prospects.  
Contact: Margaret Stevens

## Scientific Programmer

**Surrey**

**to £9,000**

Our client, a major supplier of various equipments to military establishments, wishes to recruit a scientific programmer to head the computer section of a simulation development project. The successful candidate will be responsible for setting up DP functions, including hardware and system software, design of computerised models, documentation and leading the initial team. Ideal experience would include at least 2 years FORTRAN with some exposure to ASSEMBLER, as well as good design knowledge of scientific applications. An excellent salary is supplemented by attractive fringe benefits.  
Contact: Brian Postles

## Senior Analyst/Programmers

**Dorset**

**£8,000 + Relocation**

This well established Publishing House is planning to upgrade their System 3 to a System 38, and need two experienced people to lead project teams, whose function will be to design and implement new on-line commercial systems and to support existing systems during the hardware conversion. It is essential to have at least three years experience gained in a commercial d.p. environment, which should include a sound knowledge of RPG II and design and implementation of a major system. As this organisation are committed to long term development plans career prospects are very favourable.  
Contact: Isabel Bruce

## Mini Support Programmers

**London**

**£7,500**

This internationally known mini manufacturer is marketing one of the most advanced computer systems in use today, and need experienced people to join their professional team developing various commercial applications covering banking, word processing and library circulation systems. A minimum of 2 years on-line programming experience preferably gained in a mini environment would be ideal, but consideration will be given to high calibre candidates with a sound on-line programming background. Training facilities and career prospects are excellent as this organisation firmly support promotion from within.  
Contact: Isabel Bruce

**JAMES BAKER ASSOCIATES**  
International Personnel Consultants,  
32 Savile Row, London W1.  
Tel: 01-439 9311

Systems development in a London based International Banking environment require PROGRAMMERS with 2-3 years of comprehensive programming experience, preferably on Financial Applications.

## REQUIREMENTS:

**COBOL**

—ESSENTIAL

**BASIC PLUS**

or

**RSX11**

—PREFERABLE

## PROSPECTS:

Excellent with future opportunities for European travel and a clearly defined career development path. Also, immediate involvement with the latest technology.

## SALARY:

£6,000-£10,000 (experience dependent)

## BENEFITS:

MORTGAGE SUBSIDY AVAILABLE

FREE LIFE ASSURANCE

PAID OVERTIME

LOW INTEREST LOANS

FREE BUPA

FREE LUNCHES

Telephone BOB BOWER immediately to hear more about these excellent opportunities and to arrange a prompt interview.

Ref: CW/1408

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HUTTON STREET, LONDON EC4Y 5HR.

TELEPHONE: 01-353 7141 (24 HOURS)

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SPECIALIST RECRUITMENT CONSULTANTS

**STAR JOB SPOT**

**SUPER SALES STAFF WANTED**

**N. LONDON AREAS & HOME COUNTIES**

**QE £16K + CAR**

At last a unique opportunity to join one of the world's foremost, largest and successful computer manufacturers. They have only very recently announced the latest in their white-hot technology range of multi-processing systems selling in the £30K to £100K bracket. Really take off and make a career out of your 2 years' plus selling ability. Ring Michael for details. CW33/1

## RPGII VACANCIES

**LONDON AND HOME COUNTIES**

**£8500-£8500 + CAR**

If European travel and a car interests you, then several of our current list of 11 unique vacancies for RPGII Programmers and Analyst Programmers should appeal to you. Locations are the City, East London, Slough, Colchester and Gurborn. Many of the firms have or will have the latest IBM 34 and 36 installations. One Junior Management job also available. CW33/2

## CONSULTANTS

**CENTRAL LONDON**

**£10000 to £16000**

A large, well-established consultancy wishes to recruit systems people with all-round experience on the latest equipment and the right personality to deal with clients who require first-rate service. Technical Communications Consultants are also required where systems implementation experience of IBM or DEC latest ranges are essential. Excellent fringe benefits and prospects. CW33/3

Recruitment Consultants  
UNIVERSAL COMPUTER ASSOCIATES LIMITED

01995 3383 (01958 6138 Evenings)

Data Express House, 3 Prospect Place, Heathfield Terrace, Chiswick W4







<b>HERTS</b> Mini or Micro experience Assembler Programmers and Analyst Programmers throughout the Herts in ad- vantage for Manufacturer of Intelligent terminals and mainframes. The company is small enough for you to make a significant contribution to its progress. to £9K	<b>COMMERCIAL SYSTEMS</b> COBOL Programming expe- rience essential for these Pro- grammer and Analyst posi- tions offered by leading Lon- don Bureau. A considerable amount of the work is on de- velopment of new commercial systems. Profit share scheme operated and incentive bonus scheme. to £10K	<b>MUMPS</b> MUMPS Programmers with 2+ years experience in a real- time environment wanted for in-house development work by Systems House on an accounting package Series 1 and DTS hardware involved. Location is at our Client's London offices. c £7.5K
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<b>TECHNICAL SUPPORT</b> Analysts or similar with general financial systems background and knowledge of database products required by Professional Services division of major TP and DB systems supplier based in Berkshire. Mobility essential, as most of your time will be spent visiting the Company's UK clients. to £11K	<b>WEST GERMANY</b> IBM Systems Programmers and Applica- tions Programmers needed for defence projects currently being undertaken by this highly reputed Systems and Software House based in Southern Germany. Knowledge of CICS, IMS, Adabas or similar advantageous, as is a familiarity with the German language. Generous relocation package offered, plus substantial benefits. to £18K
--	--

## Mini & Micro

### S.W. Home Counties & Cheshire

Are you currently involved in Message Switching, Communications, Military Systems, Modelling or Simulation? If you can offer sound experience in any of those fields, plus a hardware background encompassing either PDP 11, Data General, Intel 8080, Zilog Z80 or M6800, with knowledge of Assembler and at least one high level language you should be ideally suited for a position with this leading Systems and Software House.

Based in the S/W Home Counties, our Client has several UK offices, so whether your choice of location is North or South we are sure they will be able to accommodate you. Superb career opportunities and promotion prospects are offered to Senior Analysts and Programmers, Project and Team Leaders and Systems Designers. Full benefits package plus attractive salary.

## Salaries £7-11.5K

<b>MICROS ANALYSTS</b> Systems Analysts with ex- tensive experience of micros, combined with commercial application, required for de- sign and development work on hardware and software at one of our offices in the field. Electronic Engineering background preferred. £9-14K	<b>SALES</b> Technical background on micros preferably with know- ledge of graphics and plotters, required for sales role in Nor- thern England. Products are high quality graphics termi- nals - previous client con- tact advantageous, selling ex- perience not essential. c £7.5K basic	<b>DOS UK &amp; EEC</b> IBM Systems Programming experience in DOS, DOS/VSE or DOS/VSE environment, required at senior and junior levels by large and prestigious Systems Software company with operations world-wide. Knowledge of specialised ap- plications software e.g. CICS highly desirable. to £14K
--	---	---

<b>HOLLAND</b> Analyst/Programmers, Analysts, and Con- sultants with 2+ years Mini/Assembler or Micro experience gained in scientific or technical environment required by Inter- national Systems Group based in Holland. Applications include Process Control, Net- work and Message Switching and Simula- tion. Generous relocation assistance offered plus benefits package. £12-17K	<b>MINIS-MIDDX</b> Analyst/Programmers and Project Leaders sought by Mini Manufacturer for their software development section in Mid- lands. Of special interest is knowledge of Interactive Systems, Interfaces and Inter- preters. Major application areas are bank- ing and small business systems. Excellent career opportunities offered by this rapidly expanding organisation. to £11.5K
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**MATRIX**  
DOE LONDON SECRETARY

10 Grenville Place  
London SW7 4RW  
01 373 3063

If the job you're seeking isn't featured  
call Matrix - if that job exists well  
go to great lengths on your behalf.

**MATRIX**

## SITA

SOCIETE INTERNATIONALE  
DE TELECOMMUNICATIONS  
AERONAUTIQUES

### SYSTEMS ENGINEER

(Reference ED)

To join a team charged with the definition and  
the development of its next generation network  
(Advanced Network).

This engineer will:

- participate in the network development studies  
and preparation of systems specifications;
- participate in the definition and preparation  
of communications protocols;
- participate in meeting of organisations for  
standardisation.

Qualifications:

- Diploma in computer or communications science
- 2/3 years experience in real time computer  
systems and data communications.

This position is based at the head office in Paris.  
Working language is English; however, some  
knowledge of French is considered an advantage.

Please write giving full career details to:

SITA - 112, Avenue Charles de Gaulle,  
92622 NEUILLY SUR SEINE - FRANCE

### Senior Programmer

We require a Senior Programmer at our Head Office  
in Whetstone, to supervise four programmers,  
working on a variety of commercial systems in a  
project team environment.

Systems are run on an IBM 370/148 mainframe,  
and a project to select minicomputers for Group  
Subsidiaries is already underway.

Applicants, male or female, should be aged  
between 25 and 35 and ideally have experience of  
small machines as well as IBM COBOL under DOS  
VS or QSVS, or total base under DOS.

We can offer an attractive salary reflecting the  
seniority of the position, flexible hours, subsidised  
staff restaurant and 22 days' holiday per annum.

Please apply to: Personnel Officer, Bersc Group  
Ltd., Bersc House, 1265 High Road, Whetstone,  
Leicestershire, LE8 3JF. Telephone: 01-448 1313.

**BEREC**

**RESEARCH  
ASSISTANTS**

Required for 2 SRC-supported projects  
located in A. R. H. H.

At to investigate model relating to  
physics in computer codes, using the  
distributed Army Processor; appointment  
for 22 months.

By to develop a military system for the  
DARC computer, controlled robot, auto-  
mated and remote of two systems. Ap-  
pointment for 12 months.

Initial salary for both positions (under  
review) £4485 p.a. Please apply by  
letter, giving details of previous expe-  
rience and names of two referees. Re-  
sponses will be invited by letter. En-  
quiries, salary and other details: 0246

**UNIVERSITY OF  
CAMBRIDGE  
DEPARTMENT OF  
COMPUTATION**

**PROGRAMMER**

VER COM (ST/RC) positions  
are invited for the study post from  
applications with experience of  
computer programming and a  
degree of mathematical qualifications.  
The post will involve providing  
programming support for the De-  
partment's research in the area of  
computer systems and networks.  
Opportunities will be available for  
those with a degree in computer science  
and/or mathematics. The salary scale  
is £4100-£5100 p.a. per annum.  
Further information regarding  
the above positions, including  
application forms, may be obtained  
from the Department of Computation,  
University of Cambridge, 477, The  
Mathematical Institute, 23, Goodfield  
Road, Cambridge CB2 3RQ.

### ASSISTANT TREASURER (REVENUE)

(Up to £9,573 p.a.)

Third tier post having responsibility for the Rating, Grants  
Income and Allowances Sections of the TREASURY  
DEPARTMENT. Applicants must possess an appropriate  
qualification.

Salary within Grade P.O. 1G (£8,574-£9,573) (National Sp.)  
Award pending) - Post No. 44.

Essential User Car Allowance/Assisted Car Purchase Facility

### COMPUTER LIAISON OFFICER

(Up to £9,090 p.a.)

A newly created post with responsibility for advising on the  
Council's overall computer development in liaison with other  
Departments of the Council and with the Computer/Data  
Processing Section based within the TREASURY'S  
DEPARTMENT. The Council operate their own mini computer  
and at present also utilise the services of a mainframe computer  
based with another local authority. Ideally, applicants should  
be qualified Accountants with computer application  
experience.

Salary within Grade P.O. 1E (£8,097-£9,090) (National Sp.)  
Award pending) - Post No. 48.

Generous relocation package / temporary housing for both  
posts in appropriate cases.

Closing date 29th August 1980 quoting appropriate Post No.  
Offices closed Bank Holiday 25th & 26th August, 1980

Canvassing will disqualify.  
Application form and job description  
from the Personnel Office,  
Treasury's Department,  
Civic Offices, Riverside,  
Stafford ST16 3AQ.  
Tel: Stafford 3181, Ext. 346.

**STAFFORD BOROUGH COUNCIL**

**PROJECT LEADER** To £11,000  
MIDDLESEX  
A person with at least five years' experience as a Microcomputer Systems  
Analyst is required to lead a project team using a PDP 11 machine. Previous  
commercial programming experience useful.

**PROJECT LEADER** To £10,000  
MIDDLESEX  
A well established manufacturing company is seeking someone with  
commercial applications experience to lead a team engaged on de-  
velopment work. IBM mainframe machine.

**PROGRAMMER/ANALYST** £7,500  
NEAR CROYDON  
At least two years' Cobol programming and one year's analysis experience  
required for this position in a small department using an IBM 370 machine.

**BUSINESS SYSTEMS  
MANAGER** c. £8,000 + Car  
ASHFORD  
A medium-sized installation requires someone with at least two years' BPS  
II experience and about a year's analysis experience capable of supervising  
staff for this position with a manufacturing company.

If you are interested in any of the above positions, please send for an  
application form or write, giving full details.

**AMES  
PERSONNEL**  
Employment Agency Suite 14, Dryden Chambers,  
119 Oxford Street, London, W1R 0PA. Tel: 01 434 1006

## Data Processing Manager

### Newspapers South Coast

An exciting career with a successful provincial daily newspaper.  
Involvement in all aspects of the business and work of a strong technical  
interest are three features of this post which will have wide appeal.  
Portsmouth and Sunderland Newspapers is a profitable group which  
operates one of the most advanced computer systems in the industry.  
It has recently installed two DEC PDP-11/70 computers which now  
with some 60 terminals, service both commercial and production  
requirements. A DP Manager is sought who will take charge of the  
Portsmouth operation and allow the present Manager to undertake  
wider responsibilities. There will be a strong emphasis on the further  
development of systems and on ensuring user satisfaction. Candidates  
should have management experience of a large time sharing system; a  
background in newspapers would be helpful but is not essential. Salary  
will be negotiable around £10,000 with good fringe benefits.  
Location: Portsmouth.

Ref: MV517422/CW

Initial interviews are conducted by PA Consultants. No details are  
divulged to clients without prior permission. Please send brief career  
details or write for an application form, quoting the reference number  
on both your letter and envelope, and advise us if you have recently  
made any other applications to PA Personnel Services. Men and  
women may apply.

**PA Personnel Services**  
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AB EXECUTIVE (KINGSTON) LTD.







# VaRiEtY

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At present we are engaged in a five year £ multi-million project in automated office systems.

We now need 4 people who will spend the majority of their time in on-line development, working principally with COBOL, though we would expect you to display sufficient ability to meet the demands that innovation and variety require.

**SPERRY UNIVAC**

We'll listen to you—because you're our future

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Stonebridge Park,  
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As well as branch salesmen there will be field sales executives. The District Managers will supervise these sales functions, motivate their staff, implement reporting systems and share in success through the performance-related bonus.

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CURRYS MICRO-SYSTEMS  
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High Wycombe  
Bucks, HP11 1EZ



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2 POSTS—1 in London—£9,691-£10,866

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E.D.P. audit specialists are needed to carry out the full range of computer audit activities, especially the review of new applications, the examination of the operation and security of the Authority's computer installation and the development of audit software.

2 vacancies have arisen, one being based in London and the other in Reading, although both post-holders will be expected to visit other offices within the area of the Authority. Candidates should be experienced computer analysts/programmers or qualified accountants with a sound practical knowledge of accounting gained either in the Public or Private Sector. The ability to analyse constructively and communicate effectively is considered essential.

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Telephone: 01-3489 3246

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required in the Department of Computer Studies to teach and computer studies or systems design to degree, diploma and professional qualification students. Experience in computer industry or research in a team implementing computer systems is required. A commitment to research and consultancy is an essential aspect of staff activity and the person appointed will be expected to develop work related to the courses offered by the department.

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Application form and further particulars from:  
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Ideally, you should be currently selling computer systems, well versed in POS and distribution, and able to demonstrate an above average knowledge of this market area. A successful track record to-date is essential.

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Candidates are invited to submit a Curriculum Vitae, where confidentiality is guaranteed.



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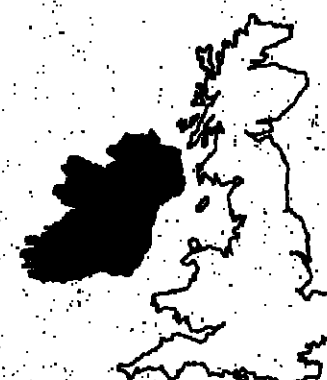
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### Sales Bit

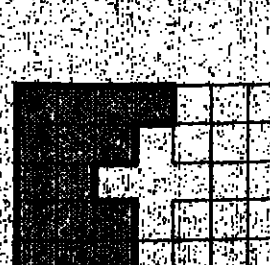
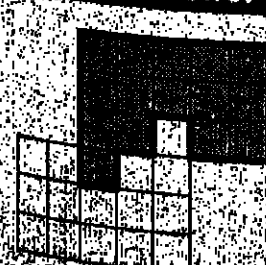
TRADER is on holiday for two weeks. Sales Bit will be resumed on his return.

### BOX Nos.

Box number replies should be addressed to:

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c/o Computer Weekly  
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Stanford Street  
London SE1 1LU

### Puzzle Answer



Just in time